



## **Tree Survey and Arboricultural Constraints**

### **WATCHTOWER PATH**

For

### **THE STEAMSHIP SIR WALTER SCOTT LTD**

05 October 2020



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## **1. GENERAL INTRODUCTION**

- 1.1. Alan Motion Tree Consulting Ltd has been instructed to carry out a tree survey for The Steamship Sir Walter Scott Ltd, in relation to proposed construction of a new Watchtower Path (the 'site') and watchtower adjacent to Trossachs Pier. This report relates to 64 trees within the survey boundary shown on the plans appended to this document. The report describes the extent and condition of tree cover within and immediately adjacent to the site and highlights the above and below ground constraints presented by existing tree cover.
- 1.2. The survey has been carried out in accordance with BS5837:2012 "Trees in relation to design, demolition and construction – Recommendations." Small trees of less than 10cm stem diameter, and areas of undergrowth are described in general terms but are not recorded in detail, except where their condition or presence merits particular attention. Within larger groups and woodlands, trees are described collectively except where dominant specimens merit individual recording.

## **2. STANDARD CONDITIONS RELATING TO TREE SURVEYS**

- 2.1. Tree surveys are undertaken from ground level using established visual assessment methodology. This is primarily a survey to assess the general health, condition, value and life expectancy of existing trees as part of the planning and design process. The report should not be read as a detailed tree safety or risk assessment.
- 2.2. Where obvious defects are noted and further investigation is required, either by climbing or the use of specialised decay detection equipment, this will be identified in the report.
- 2.3. The findings and recommendations contained within this report are valid for a period of twelve months. Trees are living organisms subject to change. It is strongly recommended that they are inspected at regular intervals for reasons of safety.

- 2.4. Whilst every effort has been made to detect defects within the trees inspected, no guarantee can be given as to the absolute safety or otherwise of any individual tree. Extreme climatic conditions can cause damage to apparently healthy trees.
- 2.5. The findings and recommendations contained within this report are based on the current site conditions. The construction of roads, buildings, service wayleaves, removal of shelter, and alterations to established soil moisture conditions can all have a detrimental effect on the health and stability of retained trees. Accordingly, a re-inspection of retained trees is recommended on completion of any development operations.
- 2.6. This report has been prepared for the sole use of The Steamship Sir Walter Scott Ltd and their appointed agents. Any third party referring to this report or relying on information contained within it does so entirely at their own risk.

### **3. GENERAL DESCRIPTION**

- 3.1. The survey boundaries and site layout as it currently exists are shown on the Tree Survey plan attached towards the end of this report.
- 3.2. The proposed path extends from midway along the western edge of the existing Trossachs Pier car park, through woodland to a raised viewpoint at Roderick Dhu. The path construction will pass through areas of maturing birch woodland and open ground, using a mix of construction methods, including stone pitching, aggregate surface, and timber boardwalk.
- 3.3. The woodland is dominated by silver birch with downy birch, and occasional rowan, common alder, ash, Scots pine, and Norway spruce, with the conifer species confined to the upper drier soils.
- 3.4. Ground conditions are variable, with some wet flushes on mid-terraces, and acid heath on the upper, drier slopes.

#### **4. STATUTORY PROTECTION**

- 4.1. Trees within the site are within the Trossachs Wood Special Area of Conservation and the Ben A'an and Brenachoile Woods Site of Special Scientific Interest. Any operations within this area will be subject to approval from Nature Scot.

#### **5. TREE SURVEY AND ANALYSIS**

- 5.1. A visual assessment has been carried out from the ground level of 64 trees within and immediately adjacent to the site. The location of the trees is plotted on the attached Tree Survey plan, and their condition and any recommended remedial works are recorded in detail in Table 2 - Tree Survey Schedule. This records relevant details in accordance with the recommendations contained in BS 5837:2012, and includes:

- Tree number (Tree tag number where used, or plan reference number)
- Tree species (common name)
- DBH: stem diameter at breast height (1.5m above ground level)
- Canopy spread in metres (N, S, E, W)
- Tree height (estimate in metres)
- Crown height (clearance to lowest branches in metres)
- Tree Condition Category
- General condition of structure and physiology (good, fair, poor, dead)
- Age (Young, Early-mature, middle-aged, mature, over-mature, veteran)
- Number of stems arising below 1.5m
- Estimated Remaining Contribution in years
- Comments and observations (if any) on the overall health and condition of the tree, highlighting any problems or defects
- Recommended remedial works, where necessary
- Impacts of any development proposals

- 5.2. Where appropriate, recommendations are made on necessary remedial action such as tree surgery or felling. This is specified where there is likely to be significant risk to safety

or tree health, or to abate a nuisance. The recommendations are general in nature and do not constitute a detailed work specification. Specifications, where required, can be provided to accord with the guidance and recommendations contained in BS3998:2010, "Tree work – Recommendations." Any recommendations are made on the basis that they are undertaken by a suitably qualified arboricultural contractor.

- 5.3. The trees have been tagged with round 4-digit tags ranging from 9661-9725. Where trees are inaccessible they are referred to by the preceding tag number and letter suffix. Closely-grouped trees of similar character may be referred to collectively as a group with a single tag number.
- 5.4. Trees have been categorised in accordance with the guidelines contained in BS 5837, set out in Table 1 of this report, as follows:  
  
20 Category A  
  
25 Category B,  
  
14 Category C  
  
5 Category U.
- 5.5. The purpose of the tree categorisation method is to identify the quality and value of existing trees, allowing informed decisions to be made concerning which trees could be removed or retained in the event of development occurring. The presence of trees and their quality is only one factor in the design and planning process, and the retention of good quality, healthy trees may be inappropriate in the context of wider planning and development considerations.
- 5.6. Young trees of <15cm stem diameter, and trees in Categories C and U with limited safe life or poor health and/or structure, are not normally considered to be a significant constraint on development.

## 6. CONSTRAINTS POSED BY EXISTING TREES

- 6.1. In order to minimise the risk of long-term damage to trees from construction operations, particular care is required to protect them from physical damage. Significant damage can be caused to tree root systems by ground level changes; soil compaction; contamination from oils and cement; and changes in soil moisture content. For these reasons, BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' sets out a recommended Root Protection Area (RPA) in m<sup>2</sup> based on the stem diameter of the tree. The RPA represents the anticipated below-ground constraints presented by trees within the proposed development area.
- 6.2. Tree roots rarely follow expected patterns. Adjustments to the RPA are recommended where restrictions to normal rooting patterns suggest that root growth will be minimal (*e.g.* adjacent to walls, sealed surfaces, watercourses, or existing utility trenches). In addition, soil type, tree species, age, vigour, canopy volume and micro-climate will all impact on root growth and the ability of individual trees to tolerate changes in rooting environment. For all of the foregoing reasons, the RPA should be taken as a guide, and should not be treated as an absolute factor.
- 6.3. Above-ground constraints presented by trees include ultimate height and canopy spread, which will affect both physical presence and daylight availability to any proposed structures. Species characteristics, such as evergreen or dense foliage, potential for branch drop, fruit fall, *etc*, will all have an influence on the potential for development of the site. Easements for underground and above-ground apparatus; road safety and visibility; or the proposed end use of space adjacent to retained trees also needs to be fully considered.
- 6.4. Where it is determined that trees should be retained because of their quality and amenity importance, the impact of proposed designs must be assessed against the requirements of the tree, taking into account the RPA and all other relevant factors. Whilst the RPA should generally be protected where possible, any proposed incursion into the RPA should comply with the recommendations of BS5837, Sections 6 and 7. Site-specific method statements may be required to accompany such proposals.

## **7. ARBORICULTURAL IMPACT ASSESSMENT**

- 7.1. The footpath construction has been designed to avoid the need for removal of any trees, and to minimise the impact on root systems through minimising invasive construction operations.
- 7.2. Only those trees identified as being in an unsafe condition in the following survey schedule will be felled or reduced to make safe. All felled or limbed timber should be left in a safe condition on the woodland floor, as close as possible to its current position.
- 7.3. The path extends for approximately 190m. It will be entirely hand-built in accordance with the Upland Path Advisory Group guidelines. For detailed specification, refer to the detailed report prepared by A.C.T Heritage.
- 7.4. Using a combination of stone pitching, aggregate surfacing with geotextile, and boardwalk construction, only minimal excavation will be necessary to remove existing turf and vegetation along the route alignment. Path surfacing will then be constructed by installing the chosen construction above existing ground levels. Impact on existing trees will be minimal.
- 7.5. All operations shall be carried out by hand, with materials distribution by power barrow. The path shall be constructed from bottom to top, allowing access into the site to take place on constructed path sections, minimising the need to traverse surrounding sensitive soils.

## **8. TREE PROTECTION PLAN**

- 8.1. A detailed Tree Protection Plan is not provided. The construction method statement provided by A.C.T Heritage provides working methods and precautions to be implemented to minimise disturbance to the site.
- 8.2. Prior to commencing operations, the path route should be clearly set out, and working zones established by delineating by red/white barrier tape. Construction access and storage of materials must be avoided beyond the delineated zone.



| TABLE 1 BS 5837:2012 TREE CATEGORISATION                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                            |                                                                                                                                       |                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Category and definition                                                                                                                                                   |  | Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |                                                                                                                                       | Identification on plan |
| <b>Category U</b><br>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years |  |  Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U Category trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)<br> Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline<br> Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality<br><i>NOTE : Category U trees can have existing or potential conservation value which it might be desirable to preserve.</i> |                                                                                                                                                                                                                                                            |                                                                                                                                       | <b>Red</b>             |
| TREES TO BE CONSIDERED FOR RETENTION                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                            |                                                                                                                                       |                        |
| Category and definition                                                                                                                                                   |  | Criteria – Subcategories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                            |                                                                                                                                       | Identification on plan |
|                                                                                                                                                                           |  | 1 Mainly arboricultural values                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2 Mainly landscape values                                                                                                                                                                                                                                  | 3 Mainly cultural values, including conservation                                                                                      |                        |
| <b>Category A</b><br><b>Trees of high quality</b> with an estimated remaining life expectancy of 40 years                                                                 |  | Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Trees, groups or woodlands of particular visual importance as arboricultural features and/or landscape features.                                                                                                                                           | Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture) | <b>Green</b>           |
| <b>Category B</b><br><b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years                                                    |  | Trees that might be included in Category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention beyond 40 years; or trees lacking the special quality necessary to merit the Category A designation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Trees present in numbers, usually as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality. | Trees with material conservation or other cultural value                                                                              | <b>Blue</b>            |
| <b>Category C</b><br><b>Trees of low quality</b> with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm        |  | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Trees present in groups or woodlands, but without this conferring on them a greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits                                                                   | Trees with no material conservation or other cultural value                                                                           | <b>Grey</b>            |

TABLE 2 TREE SURVEY SCHEDULE

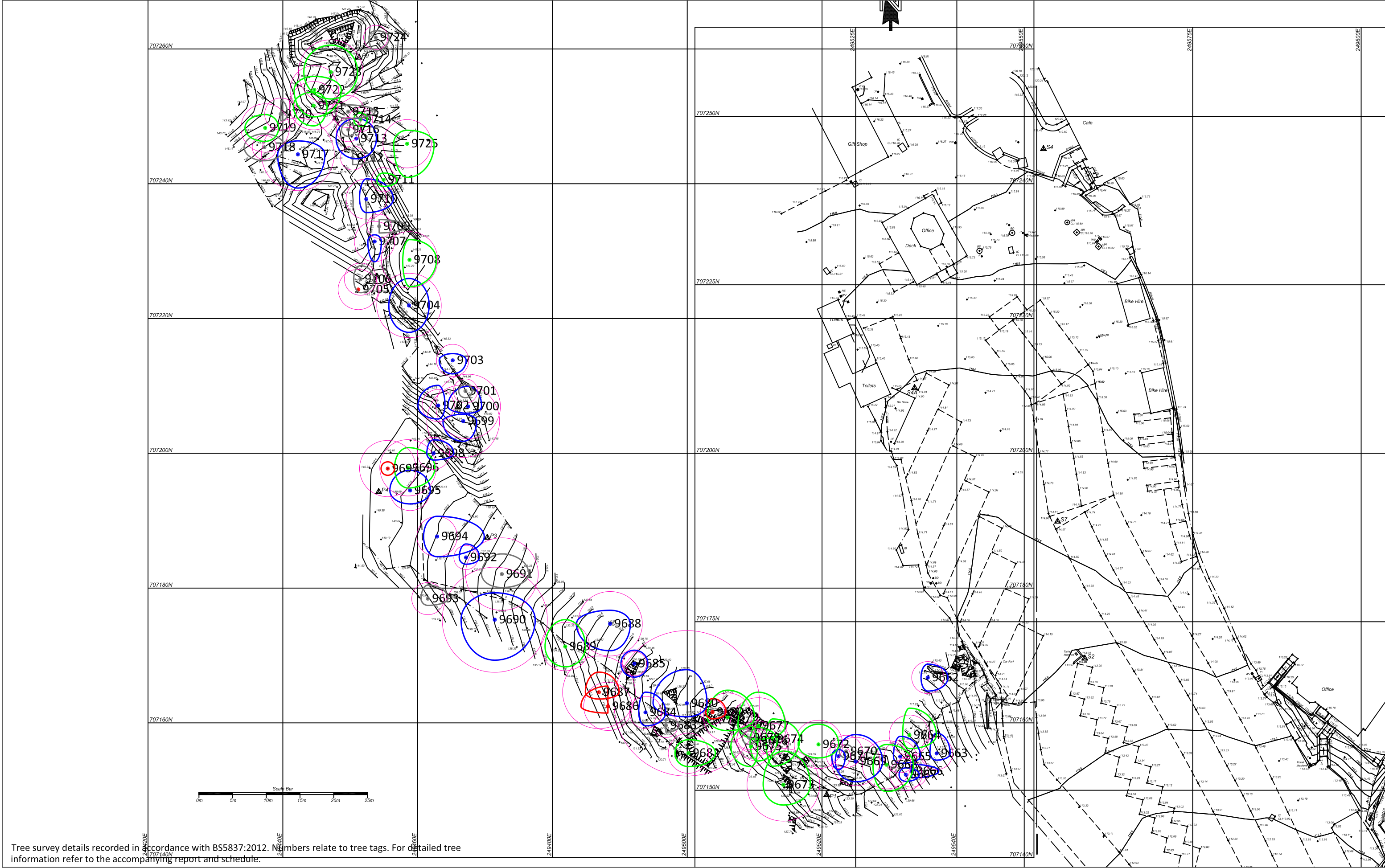
| Tag No | Species      | DBH  | N | S | E | W | Ht | C.Ht | BS Cat | Condition | Age | Stems | ERC      | Comments                                                                                                                                     | Recommendations                                          |
|--------|--------------|------|---|---|---|---|----|------|--------|-----------|-----|-------|----------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| 9662   | Silver birch | 0.20 | 2 | 2 | 3 | 1 | 10 | 1    | B2     | Good      | E-M | 3     | >40      |                                                                                                                                              |                                                          |
| 9663   | Silver birch | 0.20 | 3 | 1 | 2 | 1 | 10 | 2    | B2     | Fair      | E-M | 3     | >40      |                                                                                                                                              |                                                          |
| 9664   | Silver birch | 0.25 | 4 | 2 | 4 | 1 | 14 | 3    | A2     | Good      | M-A | 3     | >40      |                                                                                                                                              |                                                          |
| 9665   | Silver birch | 0.20 | 3 | 1 | 3 | 1 | 14 | 6    | B2     | Good      | E-M | 1     | >40      |                                                                                                                                              |                                                          |
| 9666   | Silver birch | 0.20 | 1 | 1 | 4 |   | 13 | 6    | B2     | Good      | E-M | 1     | >40      | Canopy 1-sided.                                                                                                                              |                                                          |
| 9667   | Silver birch | 0.20 | 1 | 1 | 2 | 1 | 14 | 8    | B2     | Fair      | M-A | 1     | >40      | Restricted crown development.                                                                                                                |                                                          |
| 9668   | Silver birch | 0.30 | 3 | 4 | 4 | 2 | 16 | 6    | A2     | Good      | M-A | 2     | >40      |                                                                                                                                              |                                                          |
| 9669   | Silver birch | 0.30 | 4 | 3 | 4 | 3 | 16 | 2    | B2     | Good      | M-A | 3     | 20 to 40 | Regrowth from old stump. Dead rowan amongst stems.                                                                                           | Cut back dead rowan from line of path and stack to side. |
| 9670   | Silver birch | 0.20 | 1 | 1 | 1 | 1 | 12 | 10   | C2     | Fair      | M-A | 1     | 10 to 20 | Old storm damage, lost top, restricted regrowth.                                                                                             |                                                          |
| 9671   | Silver birch | 0.15 | 1 | 2 | 1 | 1 | 11 | 8    | B2     | Fair      | E-M | 1     | >40      |                                                                                                                                              |                                                          |
| 9672   | Silver birch | 0.30 | 3 | 2 | 3 | 3 | 15 | 8    | A2     | Good      | M-A | 1     | >40      | Good straight tree of good form.                                                                                                             |                                                          |
| 9673   | Silver birch | 0.45 | 5 | 3 | 4 | 3 | 15 | 2    | A2     | Good      | M-A | 1     | >40      |                                                                                                                                              |                                                          |
| 9674   | Sessile oak  | 0.20 | 3 | 4 | 4 | 1 | 10 | 1    | A2     | Good      | E-M | 1     | >40      |                                                                                                                                              |                                                          |
| 9675   | Silver birch | 0.25 | 3 | 3 | 1 | 3 | 15 | 6    | A2     | Good      | M-A | 1     | >40      |                                                                                                                                              |                                                          |
| 9676   | Silver birch | 0.25 | 2 | 3 | 3 | 1 | 15 | 8    | A2     | Good      | M-A | 1     | >40      |                                                                                                                                              |                                                          |
| 9677   | Silver birch | 0.35 | 5 | 2 | 4 | 3 | 16 | 8    | A2     | Good      | M-A | 2     | >40      |                                                                                                                                              |                                                          |
| 9678   | Silver birch | 0.15 | 1 | 1 | 1 | 1 | 12 | 6    | C2     | Poor      | E-M | 1     | 10 to 20 | Low vigour, poor shoot extension, thin foliage. Restricted crown development.                                                                |                                                          |
| 9679   | Silver birch | 0.30 | 4 | 2 | 4 | 3 | 15 | 5    | A2     | Good      | M-A | 1     | >40      |                                                                                                                                              |                                                          |
| 9680   | Ash          | 0.15 | 2 | 1 | 2 | 1 | 13 | 6    | U      | Dying     | E-M | 1     | <10      | Chalara.                                                                                                                                     | Fell, cut and stack timber                               |
| 9680   | Common alder | 0.90 | 5 | 2 | 3 | 5 | 11 | 1    | B3     | Fair      | M   | 8     | 20 to 40 | Coppice regrowth. Old coppice, some decay in bole, north stem mostly dead. No significant hazard, longer term may need rejuvenation pruning. |                                                          |
| 9682   | Silver birch | 0.25 | 2 | 2 | 4 | 2 | 15 | 2    | A2     | Good      | M-A | 1     | >40      |                                                                                                                                              |                                                          |
| 9683   | Silver birch | 0.15 | 1 | 1 | 2 |   | 10 | 7    | C2     | Fair      | E-M | 1     | 20 to 40 | Restricted crown development.                                                                                                                |                                                          |
| 9684   | Silver birch | 0.20 | 3 | 2 | 3 | 1 | 10 | 5    | B2     | Fair      | E-M | 1     | 20 to 40 | Acute fork at 2m. Crown of fallen birch around stem.                                                                                         |                                                          |
| 9685   | Silver birch | 0.15 | 2 | 2 | 2 | 2 | 10 | 3    | B2     | Fair      | E-M | 2     | >40      |                                                                                                                                              |                                                          |
| 9686   | Ash          | 0.30 | 3 | 1 |   | 4 | 13 | 6    | U      | Dying     | E-M | 1     | <10      | Chalara.                                                                                                                                     | Fell, cut and stack timber                               |

| Tag No | Species      | DBH  | N | S | E | W | Ht | C.Ht | BS Cat | Condition | Age | Stems | ERC      | Comments                                                                                             | Recommendations                                                      |
|--------|--------------|------|---|---|---|---|----|------|--------|-----------|-----|-------|----------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| 9687   | Silver birch | 0.45 | 3 | 1 | 3 | 2 | 9  | 3    | U      | Dead      | M   | 1     |          |                                                                                                      | Reduce to make safe, leave 4m stem if feasible. Stack limbed timber. |
| 9688   | Silver birch | 0.40 | 2 | 4 | 3 | 5 | 15 | 2    | B2     | Good      | M   | 2     | 20 to 40 | Minor dead wood (<50mm dia). Secondary stem to W over line of path.                                  |                                                                      |
| 9689   | Silver birch | 0.30 | 4 | 3 | 3 | 3 | 15 | 2    | A2     | Good      | M-A | 1     | >40      |                                                                                                      |                                                                      |
| 9690   | Common alder | 0.65 | 4 | 6 | 6 | 5 | 10 | 1    | B3     | Good      | M   | 1     | 20 to 40 |                                                                                                      |                                                                      |
| 9691   | Silver birch | 0.45 | 3 | 2 | 4 | 3 | 10 | 2    | C3     | Poor      | M   | 3     | <10      | Significant cavity/decay in stem. Cavity/decay affecting main fork. Minor crown dieback. Fork at gl. |                                                                      |
| 9692   | Silver birch | 0.15 | 2 | 1 | 2 | 1 | 10 | 1    | B2     | Fair      | E-M | 1     | >40      |                                                                                                      |                                                                      |
| 9693   | Silver birch | 0.20 | 2 | 1 | 3 | 1 | 9  | 7    | C2     | Fair      | E-M | 1     | >40      | Poor crown form.                                                                                     |                                                                      |
| 9694   | Silver birch | 0.25 | 3 | 3 | 7 | 2 | 8  | 1    | B3     | Fair      | M-A | 1     | 20 to 40 | Historic windblow, stabilised, stem horizontal to N.                                                 |                                                                      |
| 9695   | Silver birch | 0.25 | 3 | 2 | 3 | 3 | 13 | 2    | B2     | Good      | M-A | 3     | 20 to 40 | Significant cavity/decay in stem. Main stem to E decayed, remaining 2 good.                          |                                                                      |
| 9696   | Silver birch | 0.35 | 3 | 3 | 4 | 2 | 15 | 2    | A2     | Good      | M   | 1     | >40      |                                                                                                      |                                                                      |
| 9697   | Silver birch | 0.35 | 1 | 1 | 1 | 1 | 7  | 2    | U      | Dead      | M   | 1     |          | Dead 2m stump, with new stem developing from base                                                    |                                                                      |
| 9698   | Silver birch | 0.20 | 2 | 1 | 3 | 1 | 6  | 2    | B2     | Fair      | E-M | 3     | >40      |                                                                                                      |                                                                      |
| 9699   | Silver birch | 0.45 | 1 | 3 | 2 | 3 | 10 | 2    | B2     | Fair      | M-A | 5     | >40      |                                                                                                      |                                                                      |
| 9700   | Silver birch | 0.40 | 3 | 1 | 2 | 3 | 11 | 3    | B2     | Good      | M-A | 1     | 20 to 40 |                                                                                                      |                                                                      |
| 9701   | Silver birch | 0.15 | 1 | 1 | 1 | 1 | 8  | 2    | C2     | Poor      | E-M | 1     | 10 to 20 | Minor cavity/decay in stem. Deformed stem, crown formed from tear at 2m.                             |                                                                      |
| 9702   | Silver birch | 0.20 | 3 | 2 | 1 | 3 | 8  | 2    | B2     | Fair      | E-M | 3     | >40      |                                                                                                      |                                                                      |
| 9703   | Rowan        | 0.20 | 1 | 2 | 2 | 2 | 5  | 1    | B2     | Fair      | E-M | 4     | 20 to 40 | Small shrubby tree.                                                                                  |                                                                      |
| 9704   | Silver birch | 0.40 | 4 | 4 | 3 | 3 | 12 | 5    | B2     | Good      | M-A | 1     | 20 to 40 | Minor dead wood (<50mm dia).                                                                         |                                                                      |
| 9705   | Silver birch | 0.25 |   |   |   |   | 7  | 6    | U      | Dead      | M-A | 1     |          | Dead stump, adjacent stem historic windblow, leans over path. Stable.                                |                                                                      |
| 9706   | Silver birch | 0.20 | 2 | 2 | 2 | 1 | 5  | 1    | C2     | Fair      | E-M | 1     | 20 to 40 | Small stunted.                                                                                       |                                                                      |
| 9707   | Silver birch | 0.25 | 1 | 3 | 1 | 1 | 10 | 1    | B2     | Fair      | M-A | 2     | 20 to 40 | Storm damage. N stem snapped at 3m.                                                                  |                                                                      |
| 9708   | Silver birch | 0.35 | 3 | 4 | 4 | 1 | 12 | 5    | A2     | Good      | M-A | 1     | >40      |                                                                                                      |                                                                      |
| 9709   | Silver birch | 0.15 | 1 | 1 | 4 |   | 9  | 1    | C2     | Fair      | E-M | 1     | 20 to 40 | Imbalanced, biased crown development.                                                                |                                                                      |
| 9710   | Silver birch | 0.25 | 3 | 2 | 4 | 1 | 7  | 1    | B2     | Fair      | M-A | 1     | 20 to 40 | Forked at 1.5m, spreading crown. Minor dieback.                                                      |                                                                      |

| Tag No | Species       | DBH  | N | S | E | W | Ht | C.Ht | BS Cat | Condition | Age | Stems | ERC      | Comments                                                                                           | Recommendations                                                                                  |
|--------|---------------|------|---|---|---|---|----|------|--------|-----------|-----|-------|----------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 9711   | Scots pine    | 0.15 | 1 | 1 | 2 | 1 | 11 | 3    | A2     | Good      | S-M | 1     | >40      |                                                                                                    |                                                                                                  |
| 9712   | Silver birch  | 0.15 | 1 | 1 | 3 |   | 7  | 3    | C2     | Poor      | E-M | 1     | 10 to 20 | Minor cavity/decay in stem at ground level. Decay from old tear out wound. Suppressed and 1-sided. |                                                                                                  |
| 9713   | Silver birch  | 0.25 | 3 | 3 | 3 | 3 | 12 | 1    | B2     | Good      | M-A | 1     | 20 to 40 | Several small splits in bark, low vigour.                                                          |                                                                                                  |
| 9714   | Rowan         | 0.15 | 1 | 1 | 1 | 1 | 8  | 3    | A2     | Good      | E-M | 1     | >40      |                                                                                                    |                                                                                                  |
| 9715   | Silver birch  | 0.20 | 1 | 1 | 4 | 2 | 5  | 1    | C2     | Poor      | E-M | 2     | 10 to 20 | Stem E dying back, old decayed branch stub from fork at 0.5m.                                      |                                                                                                  |
| 9716   | Downy birch   | 0.15 | 1 | 1 | 1 | 1 | 5  | 2    | C2     | Poor      | E-M | 1     | 10 to 20 | Minor cavity/decay in stem at 1m. Restricted crown development.                                    |                                                                                                  |
| 9717   | Downy birch   | 0.45 | 2 | 5 | 4 | 3 | 13 | 1    | B2     | Good      | M   | 1     | 20 to 40 |                                                                                                    |                                                                                                  |
| 9718   | Downy birch   | 0.15 | 2 | 2 | 3 | 3 | 5  | 1    | C2     | Fair      | M-A | 2     | 20 to 40 | Small, scrubby.                                                                                    |                                                                                                  |
| 9719   | Silver birch  | 0.30 | 2 | 2 | 2 | 3 | 12 | 4    | A2     | Good      | M-A | 1     | >40      |                                                                                                    |                                                                                                  |
| 9720   | Downy birch   | 0.20 | 2 | 1 | 1 |   | 10 | 1    | C2     | Poor      | M-A | 1     | 10 to 20 | Minor crown dieback. Dead stem adjacent to W.                                                      |                                                                                                  |
| 9721   | Norway spruce | 0.30 | 2 | 3 | 2 | 3 | 15 |      | A2     | Good      | E-M | 1     | >40      | Self-seeded into native woodland.                                                                  | Potential to remove to open views from proposed Watchtower.                                      |
| 9722   | Silver birch  | 0.30 | 2 | 4 | 4 | 3 | 14 | 3    | A2     | Good      | M-A | 1     | >40      |                                                                                                    |                                                                                                  |
| 9723   | Scots pine    | 0.40 | 4 | 4 | 4 | 4 | 11 | 1    | A2     | Good      | M-A | 1     | >40      | Coarse low branches.                                                                               | Crown lift to give adequate headroom clearance for construction of Watchtower and to open views. |
| 9724   | Silver birch  | 0.15 | 1 | 2 | 2 | 1 | 5  | 1    | C2     | Good      | S-M | 1     | >40      |                                                                                                    |                                                                                                  |
| 9725   | Silver birch  | 0.30 | 2 | 5 | 4 | 2 | 11 | 1    | A2     | Good      | M-A | 1     | >40      |                                                                                                    |                                                                                                  |

## KEY TO TREE SURVEY SCHEDULE

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------|
| No                      | Number as shown on survey plan (refers to tree tags where used)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Species                 | Common name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| DBH                     | Stem Diameter at Breast Height, measured at 1.5m above ground level. Diameter measured in 0.05m bands and <b>rounded up</b> to next 0.05m.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Canopy                  | Average canopy radius in metres (survey drawing shows actual canopy radius at 4 cardinal points).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Ht                      | Approximate tree height in metres                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| C Ht                    | Crown height, indicating clearance from ground level to lowest branches, estimated in metres                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| BS Cat                  | British Standard 5837:2012 tree categorisation (See Table 1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Condition               | General overall description of condition: <table> <tr> <td>Good:</td><td>Healthy tree with no major defects<br/>Trees with significant safe life expectancy<br/>Trees of good shape and form for the species</td></tr> <tr> <td>Fair:</td><td>Healthy trees with minor defects<br/>Trees with moderate safe life expectancy<br/>Trees of average shape and form for the species</td></tr> <tr> <td>Poor:</td><td>Trees with significant defects<br/>Trees with a limited safe life expectancy<br/>Trees of low vigour, stressed, in decline<br/>Trees of poor shape and form, suppressed, structurally weak</td></tr> <tr> <td>Dying/Dead:</td><td>Dead, dying, unsafe or dangerous<br/>Trees with little or no safe life expectancy</td></tr> </table> | Good: | Healthy tree with no major defects<br>Trees with significant safe life expectancy<br>Trees of good shape and form for the species | Fair: | Healthy trees with minor defects<br>Trees with moderate safe life expectancy<br>Trees of average shape and form for the species | Poor: | Trees with significant defects<br>Trees with a limited safe life expectancy<br>Trees of low vigour, stressed, in decline<br>Trees of poor shape and form, suppressed, structurally weak | Dying/Dead: | Dead, dying, unsafe or dangerous<br>Trees with little or no safe life expectancy |
| Good:                   | Healthy tree with no major defects<br>Trees with significant safe life expectancy<br>Trees of good shape and form for the species                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Fair:                   | Healthy trees with minor defects<br>Trees with moderate safe life expectancy<br>Trees of average shape and form for the species                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Poor:                   | Trees with significant defects<br>Trees with a limited safe life expectancy<br>Trees of low vigour, stressed, in decline<br>Trees of poor shape and form, suppressed, structurally weak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Dying/Dead:             | Dead, dying, unsafe or dangerous<br>Trees with little or no safe life expectancy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Age                     | Age class (Young, Early-mature, Middle-Aged, Mature, Over-Mature, Veteran)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Stems                   | Single (1) or multiple (M) stems from below 1.5m, used to determine the appropriate Root Protection Area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| ERC                     | Estimated Remaining Contribution in years, based on species, age, physiological condition and environmental factors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Comments                | Specific comments on any observed defects within the root zone or affecting visible buttress root system; on the main stem up to and including the point of the first main fork; and affecting main scaffold branch system or secondary branch structure. Will be left blank where no defects are noted and growth characteristics are normal                                                                                                                                                                                                                                                                                                                                                                                                           |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |
| Recommendations/Impacts | Description of any recommended remedial tree work operations required to ensure safety or for cultural reasons. Or the impact of current designs or development proposals on the tree and required works to accommodate the proposals. General description of works, not a detailed tree work specification. Any recommended works should be carried out in accordance with BS3998:2010 <i>Tree work – Recommendations</i> .                                                                                                                                                                                                                                                                                                                            |       |                                                                                                                                   |       |                                                                                                                                 |       |                                                                                                                                                                                         |             |                                                                                  |



Tree survey details recorded in accordance with BS5837:2012. Numbers relate to tree tags. For detailed tree information refer to the accompanying report and schedule.

|                                                                                                                                                                            |                                                             |                    |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------|------|
|  <b>Alan Motion Tree Consulting Ltd</b><br>Chartered Forester, Arboricultural Consultant | CLIENT: The Steamship Sir Walter Scott                      |                    |      |
|                                                                                                                                                                            | PROJECT: Watchtower path                                    |                    |      |
|                                                                                                                                                                            | DRAWING TITLE: Tree Survey as existing<br>DRAWING No: TS-01 |                    |      |
| Fairlie House-Main Street-Buchlyvie-Stirling-FK8 3LX<br>Mob-07866 389284 Tel-01360 850534<br>alan@alanmotion.co.uk<br>www.alanmotion.co.uk                                 | DATE: 1-10-20                                               | SCALE: 1:500 at A3 | REV: |

|                                                                                       |      |                  |                                                                                       |                   |
|---------------------------------------------------------------------------------------|------|------------------|---------------------------------------------------------------------------------------|-------------------|
|  | 3895 | TREES CATEGORY A |  | TREE GROUP        |
|  | 3895 | TREES CATEGORY B |  | WOODLAND          |
|  | 3895 | TREES CATEGORY C |  | HEDGEROW OR SCRUB |
|  | 3895 | TREES CATEGORY U |                                                                                       |                   |

NOTE: hatch colour denotes BS5837 Category:  
Cat A - Green  
Cat B - Blue  
Cat C - Grey  
Cat U - Red

 ROOT PROTECTION AREA  
BS5837:2012 S4.6.

