

## **Method Statement for Attaching Equipment, Cable & Rigging Assemblies etc. to Trees**

**Created by:** Stephen Page  
**Date:** 1<sup>st</sup> October 2021

### **Description of Activities:**

- Attach rigging equipment assemblies to tree trunks to create positions to hang lighting & audio equipment, whilst minimising/mitigating identified risks.
- Attach rigging equipment assemblies to multiple trees to create positions to hang lighting & audio equipment, and/or elevated routes to carry cable at high level, whilst minimising/mitigating identified risks.
- Attach cable and/or strings of lights such as festoon lighting or fairy lighting, directly to trunks/boughs/branches of trees whilst minimising/mitigating identified risks.
- Remove equipment and assemblies after use.

### **Identified Risks/Hazards:**

- Damage to tree(s) due to installation of inappropriate equipment, or failure of equipment and/or assemblies as a result of inappropriate design/specification.
- Damage to trees during installation and/or removal of equipment and assemblies.
- Injury to people during installation and/or removal of equipment and assemblies due to fall of people working at height.
- Injury to people nearby caused by installation/removal and/or failure of rigging assemblies leading to fall of equipment and/or parts of trees.
- Damage to other trees/vegetation and/or site fabric in area below/around the tree caused by installation and/or failure of rigging assemblies leading to fall of equipment and/or parts of trees.
- Damage to equipment caused by installation and/or failure of rigging assemblies leading to fall of equipment and/or parts of trees.
- Electrocution due to fall of electric cable or equipment caused by inappropriate design/specification and/or installation of equipment.
- Electrocution due to damage to electric cable or equipment caused by fall of equipment and/or parts of trees.

### **Risk/Hazard Mitigation Measures:**

Design, Specification and Management:

- All activities, both in advance and on-site, to be undertaken, managed and supervised by competent persons appointed by dbnAudile.
- Rigging assemblies to be designed & specified by competent persons, using equipment and techniques appropriate to the specific setting/usage, allowing for the weight of equipment to be attached to the rigging assembly, and for the characteristics of the specific type of tree that the assembly will be attached to and to the area where it is to be attached..
- Site Management & arborists to be consulted at planning phase, and on-site, and rigging assemblies only to be installed to appropriate trees as approved by site management.
- Structural Engineers to be consulted as required during planning phase, particularly in situations where rigging assemblies are installed linking multiple trees and/or carrying significant weight.

- ❖ Likely weather conditions, in particular wind conditions, to be considered during the planning and installation phases, and adequate flex/slack to be designed into assemblies as required to allow for likely movement of trees due to weather conditions.
- ❖ All persons appointed by dbnAudile to engage in the on-site activities to be competent, with skills and experience appropriate to the undertaking of the specific activities, and to be managed and supervised by a Head of Department appointed by dbnAudile.
- ❖ All persons engaged in activities on site to be briefed/trained in the safe working practices outlined in this Method Statement prior to commencement of work, and to be managed and monitored by the dbnAudile HOD to ensure compliance.
- ❖ Any changes that need to be made when on site should be reviewed by on-site dbnAudile HOD and approved prior to undertaking the activity. dbnAudile HOD to consult with site management/arborist/structural engineer as part of review process as appropriate.

#### Use of Appropriate Equipment & Techniques:

- ❖ All equipment used to be appropriate for use, and all lifting equipment and accessories to be appropriately rated and inspected, and used in accordance with the dbnAudile Rigging Code of Practice, and dbnAudile Rigging Inspection Procedures.
- ❖ 'Soft' rigging equipment (e.g. polyester round slings, ratchet straps, rope, cable ties, rubber cable toggles etc.) to be used to attach equipment to trees to mitigate risk of damage to trees.
- ❖ Soft materials (e.g. burlap, rubber, foam, wooden pads, PVC sleeving) to be used in between items likely to cause damage to tree (e.g. metallic objects) and the tree itself, to minimise risk of damage to tree.
- ❖ On-site Installation & removal to be undertaken by competent persons, using equipment and techniques appropriate to the specific setting/usage.
- ❖ All people involved with the activities to be competent to undertake them and to be managed and monitored by the dbnAudile HOD to ensure appropriate working is carried out.
- ❖ Equipment to be installed with consideration so as not to stress/damage fabric of tree due to excessive tightening of equipment such as cable ties around tree boughs/branches, and allowing for controlling movement whilst ensuring equipment is held securely in place.
- ❖ Where the trunk, or a bough of a tree is too large, for a single person to safely and effectively undertake the work, or the setting otherwise requires it, they will be assisted by other(s) as appropriate.
- ❖ All items of equipment hung from rigging assemblies to be attached with appropriately rated rigging accessories and secondary safety bonds attached.

#### Working at Height:

- ❖ Working at height to be avoided where possible. In all cases appropriate PPE will be used by persons working at height and by people below areas where people are working at height, areas underneath places where people are working at height will be cordoned off and managed by ground staff, and rescue plans will be in place to maintain safety of those working at height.
- ❖ Where working at height is necessary, access for working at height will be from:
  - ❖ MEWPs, with only appropriately trained & licenced operators undertaking operation of MEWPs, appropriate PPE utilised by operators and ground staff, and all operations being planned and undertaken in accordance with dbnAudile MEWP Safety Method Statement.
  - ❖ Ladders with all operations being planned and undertaken in accordance with dbnAudile ladder usage Safety Method Statement.
  - ❖ Rope access/tree climbing with only competent persons undertaking the activity and wearing PPE as appropriate to the work and all operations being planned and undertaken in accordance with dbnAudile Climbing Safety Method Statement.

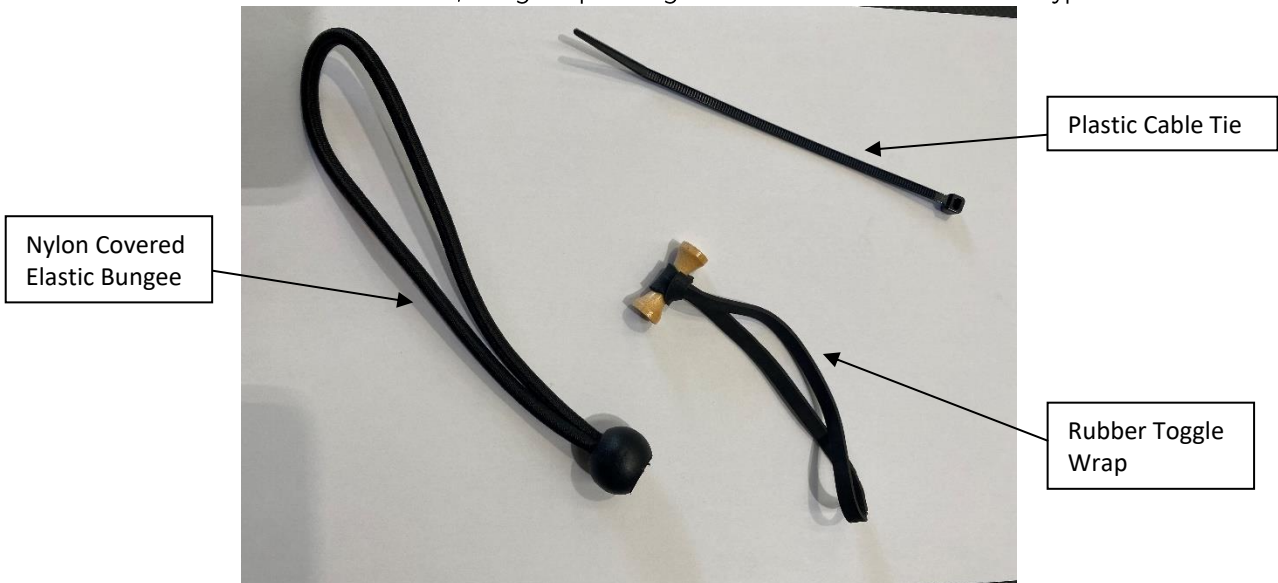
Electrical Safety:

- All equipment to appropriate for use.
- All equipment to have appropriate IP rating for use, and/or to have appropriate weather protection.
- All equipment to be regularly maintained, and inspected & tested in accordance with the dbnAudile electrical safety policy.
- Liaise with the electrical power supply/distribution company prior to arrival on site, and whilst working on-site, to ensure that all equipment and circuits are appropriately protected by appropriate RCD devices.
- Liaise with the electrical power supply/distribution company prior to arrival on site, and whilst working on-site, and ensure that electrical loads are calculated and appropriately balances across supplies.

**Example techniques for attaching cable and/or strings of lights such as festoon lighting or fairy lighting, directly to smaller trunks/boughs/branches of trees:**

For Smaller Branches:

Where the branch is of a small enough size that the fixing can completely encircle the branch and the item to be attached we use three methods/fixings depending on the size of the branch and type of tree:



The cable/string of lights is offered up to the branch and then fixed in place using either a cable tie, nylon covered bungee, or rubber toggle wrap as appropriate to the size of the branch and characteristics of the item to be attached.

The picture below illustrates this with the purple rope being used as an analog for the cable or string of lights to be attached to the branch



**Attaching cables and/or strings of lights to/around trunks, boughs and larger branches:**

Where the girth of part of the tree where the lighting strings is too large for the methods above where fixings can be used that wrap right around, loops of lighting strings are offered around the tree and attached to each other at the rear of the tree using cable ties, nylon covered bungees or rubber toggle wraps as appropriate to the characteristics of the specific setting, to give the impression that the lighting string is actually wrapped/passed right around the tree. For larger trees where the work cannot be undertaken by a single person reaching around, a second person will assist with one person working either side of the tree.

Front of Tree:



Rear of tree:



**Example Technique for attaching assemblies to tree trunks to create positions to hang lighting & audio equipment:**

An assembly of aluminium scaffolding and keyclamp scaffolding fittings is assembled, consisting of a vertical pipe with a secondary pipe attached at right angles to create a horizontal 'perch' bar from which equipment can then be hung with appropriate rigging accessories. Appropriately rated nylon/polyester ratchet straps are fed through the open sockets of the keyclamp fittings at the top or bottom of the vertical pipe, passed around the tree and loosely tightened. Soft materials such as burlap, thick rubber sheet, foam rubber or other soft materials as appropriate to the specific setting are placed in between the metal assembly and the tree trunk so as to protect the tree from damage. Further protective materials may be placed between the ratchet strap and the tree if required. If the ratchet mechanism of the ratchet strap needs to be located against the trunk of the tree, protective materials and/or softwood pads or battens will be placed between the ratchet and the tree as appropriate.





Wooden Batten to protect tree from metalwork of ratchet

Soft materials such as burlap or rubber sheet between metalwork & tree to protect tree



Installation of assemblies to be carried out by two people to minimise risk of equipment fall, and to minimise risk of damage to tree.

**Examples of Techniques used in Practice:**

Images from arboretum installations at Wollaton Hall, Nottingham.



Tensioned catenary wire to carry cables etc between trees at height. Appropriately rated steel wire rope attached to appropriately rated shackle and polyester roundsling circled around tree trunk, tension applied via ratchet strap or bottle screw. Cable attached to steel wire rope using cable ties, including steel cable ties where elevated route is above vehicle access or public pedestrian route.

