

T Level Technical Qualification in Agriculture Land Management and Production: Tree and Woodland Management and Maintenance Occupational Specialism (Level 3) Arboriculture Pathway

Practical Assignment

Candidate Pack (Sample)

September 2023 Version 2.1

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1. Assessment

This assessment is for the Tree and Woodland Management and Maintenance (Arboriculture) Occupational Specialism of the Technical Qualification. This pack consists of a practical assignment brief, including any drawings and diagrams, that you will need to use to complete your assessment tasks.

Performance outcomes

The weightings for each performance outcome will remain the same for every version of the practical assignment. This ensures the appropriate depth and breadth of knowledge and skills for each specialism can be reliably assessed in every version and meets the needs of industry while keeping comparability between each assessment over time.

Performance outcome	Typical knowledge and skills	Weighting
PO2 Grow trees and woodlands. (common to both pathways)	Knowledge of tree species, types and sources of tree stocks for planting and establishment, factors affecting successful tree establishment and requirements for protecting trees from threats. Skills required to plant trees using suitable techniques.	20%
PO3 Operate and maintain forestry and arboriculture machinery. (common to both pathways)	Knowledge of the health and safety, maintenance and operation requirements of machinery commonly used in industry including chainsaws, winching equipment and wood chippers. Basic skills required to safely operate forestry and arboriculture machinery.	20%
PO7 Manage tree populations to meet objectives (arboriculture pathway)	Introduction to typical tree management objectives and operations relevant to modern arboricultural practice, features of different types of sites, environments and infrastructure. Knowledge of different surveying and monitoring techniques including tree inspection techniques and technology for monitoring tree health. Methods of valuing trees and relevant legislation including TPOs. Skills necessary to survey, inspect and value different aspects of trees and tree populations.	20%
PO8 Maintain trees to meet prescribed objectives (arboriculture pathway)	Knowledge of the requirements and techniques for the maintenance of trees and environments to meet different objectives, and the reasons for their application. Related maintenance including weed and vegetation management, boundary and infrastructure maintenance. Skills necessary to maintain trees including climbing and aerial rescue, pruning using hand tools, maintenance of boundaries, surfaces and structures.	20%
PO9 Undertake complex arboriculture operations (arboriculture pathway)	Knowledge of the health and safety, site management and environmental requirements for complex arboriculture operations. Introduction to different methods of accessing, pruning, dismantling and felling trees and their applications. Knowledge of the different techniques for carrying out ground and aerial operations with chainsaws. Skills necessary to carry out aerial treework with chainsaw, perform assisted felling with winches and assist with rigging operations from the ground.	20%

2. Candidate guidance

General guidance

This is a formal assessment that you will be marked and graded on. You will be marked on the quality and accuracy of the work you produce. It is therefore important that you carry your work out to the highest standard you can.

Plagiarism

Plagiarism is the failure to acknowledge sources properly and/or the submission of another person's work as if it were your own. Plagiarism is not allowed in this assignment.

This assignment is an assessment of your abilities, so the work submitted must be all your own and carried out under the conditions stated. You will be asked to sign a declaration that you have not had any help with the assignment. Your assessor is allowed to give you general advice i.e., clarification of the task instructions. However, general advice will not include:

- Any specific advice on how to improve work to meet the required standard
- Feedback on anything missing from your work
- Any intervention that improves the standard or presentation of work

If there is a need to provide more than general advice your assessor will need to record the advice, they have given and take it into account when marking the submitted work.

Where research is allowed, your assessor must be able to identify which work you have done yourself, and what you have found from other sources. It is therefore important to make sure you acknowledge sources used and clearly reference any information taken from them (e.g. providing as a minimum a list of web addresses / books / articles etc used).

Timings and planning

You are advised to study the details of the assessment before starting.

You should check with your assessor that you have all the relevant materials, equipment and information/data sources that you need before starting the assessment.

You should take care when planning to make sure you have divided the time available between parts of the assignment tasks appropriately. Timings for tasks are provided within this pack to support with planning and time allocation.

If you have a good reason for needing more time, you will need to explain the reasons to your assessor and agree a new time for the assessment to take place. Any changes will be at the discretion of the assessor and agreed by City & Guilds.

Word counts

Typical word counts, where indicated, are to be used as approximates for guidance to support the production of sufficient evidence. The marking will relate to the quality of the evidence produced and not whether the word count has been met.

Health and Safety

You must always work safely, in particular while you are carrying out practical tasks.

You must always follow any relevant Health and Safety regulations, Risk Assessments and codes of practice in line with centre requirements.

If your assessor sees you working in a way that is unsafe for yourself or others, they will highlight the issue and ask you to stop the task immediately.

Presentation of work

Presentation of work must be neat, legible and appropriate to the task and evidence required for submission.

You should make sure that each piece of evidence, including any forms, are clearly labelled with your name and the task reference.

All electronic files must be given a clear file name that allows your assessor to identify it as your work.

Written work may be digital or handwritten unless stated otherwise.

All sketches and drawings should be neat, tidy and annotated.

Calculations should be set out clearly, with all working shown, as well as any assumptions made. You should use appropriate units at all times, consistent with the requirements of the assignment.

Instructions for this assignment

Ensure you read all the provided assessment information issued by the assessor

You must work independently and not share your work with any other candidates in these supervised assessment sessions.

Your work will be kept secure during any supervised breaks that are taken.

Internet access is **not** allowed, unless otherwise stated in the task.

You will not be permitted any additional notes, such as printed resources and textbooks, unless otherwise stated in the conditions for assessment.

You must complete all the tasks and present all evidence that is detailed in each task.

This assessment booklet contains the assignment brief.

The tasks have been separated into individual documents which will be handed to you at the start of each task.

Any additional documents/templates needed for the task will be provided to you by the assessor.

Within each task you will find the following:

- **Resources:** Provides a list of equipment, documents or tools that you will have access to, to complete the task/sub task.
- **Conditions of assessment:** This will tell you the duration and rules you must follow when completing a task.

- **Controlled conditions:** This will tell you the rules you must follow when completing each task e.g. You must not share or discuss your work with other candidates.
- **What must be produced for marking:** This describes the evidence you must submit when the task is completed. Be aware that failure to submit any evidence requested can adversely affect your overall mark for the assessment.
- **Additional evidence for this task:** This describes other forms of evidence that will be collected by the assessor to support the marking of your performance. This will often include but is not limited to, photographic and video evidence.

Performance Outcome and Assessment Themes

A set number of marks are allocated against each performance outcome assessment theme, based on the performance outcome weightings recommended by stakeholders of the qualification. This mark allocation remains the same for all versions of the assessments, ensuring consistency across assessment versions and over time.

You will be assessed against these assessment themes. This assignment brief has a total of 150 marks. The table below shows the mark distribution for this assessment.

Performance outcome (PO)	PO assessment themes	Marks per assessment theme	Marks per PO
PO2 Grow trees and woodlands	plan for establishment	Tree stocks (6) Establishment plans (12)	30
	establish trees	12	
	health and safety	9	
PO3 Operate and maintain forestry and arboriculture machinery	maintain machinery	9	30
	operate machinery	12	
	environment and plant health	9	
PO7 Manage tree populations to meet objectives	tree management planning	9	30
	tree surveys and inspections	12	
	health and safety	6	
PO8 Maintain trees to meet prescribed objectives	environment and plant health	6	30
	plan for tree and site maintenance	9	
	perform tree and site maintenance	9	
	health and safety	6	
PO9 Undertake complex arboriculture operations	environment	6	30
	prepare for complex arboricultural operations	6	
	perform complex arboricultural operations	12	
	Total		

3. Assignment brief

Northwest Park was developed and planted in 1960. The park is located on the edge of a town on a level site with free-draining soil, and the whole site lies within a conservation area. It is popular with local visitors for exercise, recreation and dog walking.

The main park features:

- A large open grassy area containing several mature broadleaved trees of different species
- Various smaller trees and shrubs
- Well-used footpaths which run close to and under some of the mature trees.

Your employer has recently won a contract to carry out work at Northwest Park which includes the following.

Tree work

A survey of the trees must be undertaken to identify any work that is required. The contract includes the following work:

- Survey and inspection of the trees in the main park and production of a tree report with recommendations for any work required.
- Planning for the required tree work must be carried out and documented. This will include planning how the proposed tree work will be done in accordance with current legislation and industry-best practice (including any working at height) and how the site will be safely managed.
- Pruning, dismantling and felling of trees.

New planting and maintenance

The owners of Northwest Park plan to establish a small arboretum on an area of land adjoining the main park, to be enjoyed as a visually appealing public space and to be used by schools and a college as a resource to educate students about a diverse variety of tree species.

The area is 0.5 hectares in size and features mostly open ground with some mature Ash trees that are showing signs of Ash dieback, some specimen conifers and an old boundary fence in need of repair.

Ongoing maintenance for the proposed arboretum site will also be required to ensure successful establishment of trees and that the site is safe for visitors.

The contract includes the following work:

- Production of a planting plan for the arboretum including selection of species and planting specifications
- Production of a three-year maintenance specification for the arboretum site
- Planting and protection of trees in the arboretum
- Maintenance and repair of the existing damaged boundary fence

This assignment contains 7 tasks and has a time of 35.5 hours.

4. Tasks

Task 1 – Tree survey and report

You must carry out the survey and inspection of the trees and produce a report with recommendations for any work required. Annotate a map of the site and include it in the report. **The assessor will provide the map of the site to work from.**

a) Carry out the tree survey. The survey must include the following information.

- Tree species (candidates may use plant/tree identification books/keys/apps provided by the assessor)
- Tree heights
- Stem diameters (dbh)
- Crown spread
- Estimated ages
- Tree condition

b) Produce the report. The report must include:

- an annotated map of the site
- recommendations for tree work required
- priorities for the recommended tree work.

Resources:

- A map of the site showing the area to be surveyed and the location of the footpath
- Equipment to estimate tree height.
- Equipment to measure tree diameter.
- Equipment to measure linear distances on the ground
- Plant/tree identification books/keys/apps.

Conditions of assessment:

- The time allocated for this task is **8 hours**.
 - a) Survey: 4 hours
 - b) Report: 4 hours
- You must carry out the task on your own, under **controlled conditions**.
- You will be supervised by the assessor while carrying out the survey.
- The assessor will provide a site plan for you to annotate and include in your report.
- Access to the internet is **not** permitted when writing the report.

Controlled conditions:

- You must only work on tasks in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- You may use plant/tree identification books/keys/apps provided by the assessor.
- You are **not** permitted to bring any additional materials into the assessment session.
- You must not share or discuss your work with other candidates.

What must be produced for marking:

- Results of the tree survey.
- Report (typically 250 words) including annotated map of the site.

Additional evidence of your performance that must be captured for marking:

- Assessor observation (for part a).
- Photographic evidence by assessor.

Task 2 – Tree work planning

You must plan tree work for **three** trees specified by the assessor, to be done in accordance with current legislation and industry best practice. The assessor will provide a copy of the map of the site showing the locations of the trees to be worked on, for you to annotate when visiting the site.

You will need to consider the most appropriate methods to carry out the required work effectively, including measures to ensure safety during the operations, and that the site is left in a safe and tidy condition.

- a) Visit the site and produce a work at height risk assessment for the aerial tree work, using the template provided. Assessors will provide the following reference documents and templates:
 - *Figure 1: Risk Hierarchy for Tree Work at Height (Extract from Industry Code of Practice – Tree Work at Height Second Edition).*
 - *Figure 2: Step-wise approach to working through the hierarchy for tree work at height*
 - *Figure 7: Work at height risk assessment template.*
 - Map of the site with locations of the trees to be worked on marked.
- b) Using *Figure 8: Method statement template*, produce a method statement for the work to be done and the management of the site during the operation.
- c) To accompany the method statement, create a Site Constraints Map, by annotating the map of the site provided by the assessor to indicate site constraints, showing locations for signage and/or controls recommended.

Resources

- Map of the site with locations of the trees to be worked on marked.
- *Figure 1: Risk Hierarchy for Tree Work at Height.*
- *Figure 2: Step-wise approach to working through the hierarchy for tree work at height.*
- *Figure 7: Work at height risk assessment template.*
- *Figure 8: Method statement template.*

Conditions of assessment

- The time allocated for this task is 4 hours.
- You must carry out the task on your own, under **controlled conditions**.
- Access to the internet is **not** permitted.

Controlled conditions

- You must only work on tasks in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- You are **not** permitted to bring any additional materials into the assessment session.
- You must **not** share or discuss your work with other candidates.

What must be produced for marking:

- Work at height risk assessment.
- Method statement and site constraints map.

Additional evidence of your performance that must be captured for marking

- n/a

Task 3 – Carry out tree work

In this task, you will demonstrate maintenance pruning and complex arboriculture operations.

a) Prepare for the operations by visiting the site and completing:

- a site specific risk assessment.
- an emergency plan document.

The assessor will provide the following templates:

- *Figure 5: Risk assessment template*
- *Figure 6: Emergency plan template*

b) Prepare machinery:

1. i. Carry out pre-use checks for all machinery to be used during the task (chainsaw, powered pole pruner, wood chipper)
ii. Following pre-use check of the chainsaw, conduct any identified field maintenance required.

c) Perform a crown raise of **one** tree from the ground using a pole saw or powered pole pruner in accordance with industry best practice.

d) Climb and perform a crown raise and dead wooding of **one** tree, using a chainsaw and hand saws as appropriate, in accordance with industry best practice.

The following cutting techniques must be demonstrated during the operation:

- Step cuts (demonstrate both freefall **and** handheld)
- Sink cuts (demonstrate both freefall **and** handheld)
- Final pruning cuts

e) Assist with dismantling of **one** tree by supporting rigging operations from the ground.

- Work with the climber to estimate the weight of pieces to be lowered and the amount of friction required in the lowering device.
- Refer to the rigging data tables provided by the assessor as appropriate.

f) Perform an assisted fell of the remaining stem of the dismantled tree using a winch-based or rope-based system. Process the stem according to requirements.

g) Use a manually-fed wood chipper to deal with the arisings from the operation, in accordance with industry best practice.

Resources:

- *Figure 5: Risk assessment template*
- *Figure 6: Emergency plan template*
- All climbing equipment, safety equipment and PPE necessary for the task
- Suitable chainsaw(s) (petrol- or battery-powered)
- Personal first aid kit
- Hand cutting tools

- Fuel (if using petrol-driven chainsaw)
- Chain oil
- Batteries and charging equipment (if using battery-powered chainsaw)
- Chainsaw maintenance tools
- Felling aids – including all necessary accessories for safe operation
- Copies of suitable rigging data tables for reference
- Manually fed wood chipper.

Conditions of assessment:

- The time allocated for this task is **8 hours**:
 - part a) risk assessment and emergency plan – 1 hour
 - part b) prepare machinery and field maintenance of chainsaw – 30 minutes
 - part c) crown raise from the ground – 1 hour
 - part d) aerial crown raise – 2 hours
 - part e) assisted fell and processing of one stem – 1 hour
 - part f) assist with dismantling and rigging – 2 hours
 - part g) chipping arisings – 30 minutes
- You must carry out the task on your own, under **controlled conditions**.
- Your assessor will provide you with rigging data tables for use in part (f).
- Access to the internet is **not** permitted.

Controlled conditions:

- You must only work on tasks in the allocated times
- Assessment evidence must be handed in at the end of each session for secure storage.
- You are **not** permitted to bring any additional materials into the assessment session.
- You must **not** share or discuss your work with other candidates.

What must be produced for marking:

- Site-specific risk assessment
- Emergency plan.

Additional evidence of your performance that must be captured for marking:

- Assessor observation (for parts b)–g))
- Photographic evidence by assessor

Task 4 – Planting plan

Produce a planting plan for the arboretum.

Considering the information in the assignment brief and in *Figure 3: Northwest Park arboretum site plan and information*, select a suitable range of tree species and decide how many of each species will be planted and where on the site. You will also need to consider and specify the type and size of tree stock. The soil is a freely draining sandy loam with a pH of 6.

a) You will need to research suppliers and prices to estimate the cost of planting. You must consider:

- suppliers of trees and protection materials
- prices
- the types and sizes of tree stock available
- responsible sources of tree stocks, taking this into account when selecting supplier(s).

b) Produce a planting plan for the arboretum, to include:

- Site layout and planting locations (by annotating the map provided)
- List of species selected (scientific and common names) and quantities.
- Planting specification including: Tree stock type, size, spacing, plant handling requirements and planting method(s).
- Recommended supplier(s).
- Identification of factors which could affect successful establishment.
- Support and protection methods.
- Justifications for all the above decisions.
- Estimate of establishment costs to include:
 - purchase trees of each species
 - purchase of any support/protection materials
 - planting trees of each species including any individual tree protection required.
(Refer to *Figure 4: Table of standard establishment costs*).

Resources:

- ICT facilities with internet access.
- *Figure 3: Northwest Park arboretum site plan and information*.
- *Figure 4: Table of standard establishment costs*.

Conditions of assessment:

- The total time allocated for this task is **6 hours**:
 - part a) 1.5 hours
 - part b) 4.5 hours.
- You will have access to the internet.
- You will be provided with copies of *Figure 3: Northwest Park arboretum site plan and information*, and *Figure 4: Table of standard establishment costs*.
- You must carry out the task on your own, under **controlled conditions**.

Controlled conditions:

- You must only work on tasks in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- You are **not** permitted to bring any additional materials into the assessment session.
- You must **not** share or discuss your work with other candidates.

What must be produced for marking:

- Planting plan (typically 1000 words) including annotated map.

Additional evidence of your performance that must be captured for marking:

- n/a

Task 5 – Maintenance plan

Produce a maintenance plan for the arboretum. You should refer to the assignment brief, *Figure 3 Northwest Park arboretum site plan and information*, and your planting plan from Task 4.

The maintenance plan will detail recommendations for the maintenance of the arboretum site over a three-year period after it has been planted, to ensure successful establishment of the new trees, maintenance of the existing mature trees and footpaths, and the safety of visitors to the site.

Your three-year maintenance plan must include the following.

- Maintenance requirements and schedule for:
 - the newly planted trees
 - the existing mature trees
 - the footpaths
- Management recommendations for the existing mature Ash trees.
- How arisings from maintenance and management activities will be managed, including consideration of opportunities to generate revenue and potential markets for arisings/by-products.
- Justifications for the decisions made in the plan.

Resources:

- ICT equipment
- *Figure 3 Northwest Park arboretum site plan and information*
- Your Planting Plan and annotated map from Task 4.

Conditions of assessment

- The time allocated for this task is 6 hours.
- You must carry out the task on your own, under controlled conditions.
- You will have access to your planting plan and annotated map from Task 4.
- Access to the internet is **not** permitted.

Controlled conditions:

- You must work on tasks only in the allocated times.
- Assessment evidence must be handed in at the end of each session for secure storage.
- You are not permitted to bring any additional materials into the assessment session.
- You must not share or discuss your work with other candidates.

What must be produced for marking:

- Three-year maintenance plan.

Additional evidence of your performance that must be captured for marking:

- n/a

Task 6 – Planting

Plant **two** standards and install appropriate support according to the planting specification provided, using suitable planting and installation techniques.

Planting specification
<ul style="list-style-type: none">• Trees to be planted will be root-balled standards• Planted in suitably sized planting pits, to an appropriate depth• Supported appropriately with stakes• Suitable protection installed• Irrigated appropriately.

- a) Select the equipment necessary to carry out the task, from the range provided by the assessor.
- b) Prior to planting you must:
- check the condition of the trees
 - verbally report any defects to the assessor
 - prepare the trees for planting.
- c) Working in a **group of two**, prepare planting pits and plant the two trees, to the appropriate depth, using suitable techniques to meet the planting specification.
- You will independently prepare a planting pit each.
 - You will plant one tree; your partner may assist by supporting the tree when necessary, as directed by you.

Resources:

- Suitable planting stock.
- PPE.
- A range of planting spades/implements.
- A range of equipment and materials for installing support and protection.

Conditions of assessment:

- The time allocated for this task is 1.5 hours.
- You must carry out parts a) and b) on your own, under controlled conditions while being observed.
- You will carry out part c) in groups of **two**, under controlled conditions while being observed.
- Internet access is **not** permitted for this task.

Controlled conditions:

- You must only work on tasks in the allocated times.
- You are **not** permitted to bring any additional materials into the assessment session.
- You must **not** share or discuss your work with other candidates.

What must be produced for marking

- n/a

Additional evidence for this task:

- Assessor observation.
- Photographic evidence by assessor.

Task 7 – Boundary maintenance

Undertake the repair and maintenance of a section of post and rail or stock fence. The fence and area where the work is to be undertaken will be set by the assessor.

You will need to:

- inspect the fence and identify the maintenance or repairs required
- select the equipment needed to carry out the repairs and maintenance. The assessor will provide a range of equipment
- carry out the required repairs and maintenance to the fence, leaving the site in a safe and tidy condition.

Resources:

- PPE
- A range of fencing equipment and materials

Conditions of assessment:

- The time allocated for this task is 2 hours.
- You must carry out the task on your own, under **controlled conditions** while being observed.
- You may have assistance from another candidate/a technician/other member of staff, with the post re-installation element of the task (to lift the post into the hole and position it). You must direct the actions of your assistant.
- Internet access is **not** permitted for this task.

Controlled conditions:

- You must only work on tasks in the allocated times.
- You are **not** permitted to bring any additional materials into the assessment session.
- You must **not** share or discuss your work with other candidates.

What must be produced for marking:

- n/a

Additional evidence for this task:

- Assessor observation.
- Photographic evidence by assessor.

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