T Level Technical Qualification in Agriculture, Land Management and Production

Tree and woodland management and maintenance (Arboriculture pathway) Occupational Specialism

Guide Standard Exemplification Material

Distinction – Sample 2023

Version and date	Change detail	Section
November 2023 v1		

Contents

Introduction

The sample evidence within this document refer to the Tree and Woodland Management and Maintenance (Arboriculture pathway) Occupational Specialism assignment. The aim of these materials is to provide centres with examples of knowledge, skills and understanding that attest to a distinction grade. The evidence presented here has been developed to reflect a distinction grade within each task but is not necessarily intended to reflect the work of a single candidate. It is important to note that in live assessments a candidate's performance is very likely to exhibit a spikey profile and the standard of performance will vary across tasks. The GSEM illustrates linear performance across all pieces of evidence at the grade. A distinction grade will be based on a synoptic mark across all tasks.

The evidence in this Guide Standard Exemplification Material (GSEM) is separated into the sections as described below. Evidence is presented against tasks from the assignment. Assessors using the GSEM may find it helpful to review this document along with the sample assessment materials.

Task
This section details the evidence to be submitted for marking and any additional evidence required including any photographic/video evidence. Also referenced in this section are the performance outcomes and assessment themes the evidence will be marked against when completing the tasks within it. In addition, evidence that has been included or not been included in this GSEM has been identified within this section.

In this GSEM there is evidence from:

- Task 1
- Task 2
- Task 3
- Task 4
- Task 5
- Task 6
- Task 7

Evidence
This section includes exemplars of evidence, photos/video recordings of the evidence in production (or completed) and assessor observation records of the assessment completed by centre assessors. This will be exemplar evidence that was captured as part of the assessment and then internally marked by the centre assessor.

The items of evidence included in the GSEMs are designed to illustrate the grade at evidence level. They are not intended to reflect the performance of a single candidate across the assignment. Not all items of evidence are included in the GSEM, however a representative sample of evidence from across the assignment has been included to sufficiently illustrate the standard of performance expected for each type of evidence.

Commentary

This section includes detailed comments to demonstrate how the evidence attests to the standard of distinction.

It is important to note that the commentary section is not part of the evidence or assessment but are evaluative statements on how and why that piece of evidence meets a particular standard.

Grade descriptors

To achieve a distinction, a candidate will be able to:

Demonstrate excellent performance that fully meets the requirements of the brief, demonstrating strong technical skills and techniques for planning, preparing, and carrying out the work to consistently high standards including safety and quality.

Competently and thoroughly interpret technical information, applying strong technical knowledge and skills to plan, assess risk and follow safe working methods for practical tasks and procedures to an excellent standard in response to the requirements of the brief, working systematically, logically and efficiently.

Thoroughly prepare working area, mitigating potential risks prior to commencing tasks and consistently apply comprehensive control measures during tasks that allow safe and efficient working.

Work safely and make well founded and informed decisions on the selection and appropriate use of tools, materials and equipment within the working environments for establishment, management/maintenance and climbing/aerial activities.

Carry out practical tasks to an excellent standard, producing an excellent quality of work that meets relevant regulations and standards.

Apply excellent knowledge and skills to identify and measure characteristics and features, and record, present and analyse the information to satisfy the requirements of the brief.

Consistently use technical terminology accurately.

Task 1 – Tree survey and report

Evidence contributes to the following:

Performance outcome	Assessment themes
PO7 Manage tree populations to meet objectives	Environment and plant health Tree management planning Tree surveys and inspections

Evidence	**Assessment themes**	**Candidate producing**	**Assessor producing**	**Included in this version of GSEM**
	part a) tree survey			
assessor observation	PO7: Tree surveys and inspections		√	√
photographs	PO7: Tree surveys and inspections		√	√
	part b) report			
report including annotated map	PO7: Environment and plant health PO7: Tree management planning PO7: Tree surveys and inspections	√		√

Assessor observation

Task	Qualification number
Task 1 – tree survey	8717-405
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO7: Tree surveys and inspections

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	Notes – *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
• Methods and accuracy of identification of tree species	The candidate prepared for and undertook the tree survey to a high standard. The candidate correctly identified the species of the 7 trees present and did not need to refer to the tree key. They visually inspected the trees from the ground and undertook a detailed inspection, to provide a comprehensive assessment of tree condition.
• Methods and accuracy of measurement of stem diameters (dbh)	The candidate selected appropriate survey equipment (tree key, dbh tape, clinometer, linear tape measure, compass). They checked the dbh tape before using it to ensure it had not stretched. The candidate intermittently checked the measurements as they took them to confirm accuracy and recorded them at an appropriate level of detail to minimise loss of potential information.
• Methods and accuracy of measurement of tree heights	Accuracy of dbh measurements using dbh tape was consistent, heights taken with the clinometer and measuring tape were consistently accurate.

Assessor observation	Notes – *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
• Methods and accuracy of measurement of crown spread	Crown spread was measured using a measuring tape and compass. The candidate took four measurements (north, south, east, west) from the stem to the edge of the crown. The candidate also used the compass to determine and record direction of lean where necessary. The candidate visually inspected the trees from the ground and undertook a detailed inspection making a comprehensive range of relevant observations including a large dead branch in a *Quercus robur* close to (but not overhanging) the path, evidence of past pruning on one of the *Aesculus hippocastanum*, and the high risk nature of one of the infected *Fraxinus excelsior* leaning towards the path. Overall, the candidate demonstrated competent practical skills and application of knowledge to satisfy the requirements of the task, showing a detailed awareness of the key considerations associated with undertaking a tree survey.

Assessor signature	Date
Sample Assessor	23/03/2023

Photo/video evidence

Photo evidence: method used to measure height

- Photo showing method used to measure height – candidate sighting tree using clinometer, tape along the ground from tree to candidate position.

Photo evidence: method used to measure stem diameter

- Photo showing method used to measure stem diameter – photo with bottom of tree in frame, showing candidate using girth tape, candidates' position and angle of tape visible (not sagging or twisted, tight to the stem).

Commentary

The candidate demonstrated an excellent performance that fully met the requirement of the brief. They demonstrated strong technical skills and techniques for carrying out **tree surveys and inspections** to excellent standards.

The candidate demonstrated strong application of tree identification methods to identify species present by full scientific name and common name. Measurements were taken with a high level of accuracy and readings were consistently checked/confirmed where required.

The visual assessment of tree condition was detailed and the candidate made useful additional measurements (e.g. the candidate also used the compass to determine and record direction of lean where necessary) such as recording the direction of lean, allowing them to make 'a comprehensive range of relevant observations including… the high risk nature of one of the infected *Fraxinus excelsior* leaning towards the path'.

Candidate evidence – Survey report including annotated map

Tree survey report

Tree ID	Tree species	Age class	Tree height (m)	Stem diameter (cm)	Crown spread (m)				Condition	Work recommendation	Work priority
					N	*S*	*E*	*W*			
T01	*Fraxinus excelsior* (ash)	SM	18.1	35	6	7	6	6	Minor evidence of crown dieback indicating Chalara (*Hymenoscyphus fraxineus*)	Monitor condition regularly as close to path, but no immediate risk to public.	Low
T02	*Quercus robur* (pedunculate oak)	Y-SM	14.6	49	4	5	3	6	Decay cavity 3.5m high on east side of stem and large dead branch close to the path but not overhanging	Prune to remove large dead branch Precautionary aerial inspection of cavity to determine extent of decay or evidence of habitat	High
T03	*Fraxinus excelsior* (ash)	SM	17.2	37	8	5	5	6	Extensive evidence of crown dieback indicating Chalara (*Hymenoscyphus fraxineus*)	Remove tree due to risk to cause injury or damage because it is close to the path and leaning (south) towards the target.	High
T04	*Quercus robur* (pedunculate oak)	M	17.1	75	7	8	7	7	Good condition – no visible evidence of work needed	Annual visual monitoring of condition	N/a
T05	*Aesculus hippocastanum* (Horse chestnut)	M	15.4	71	7	9	8	5	Good condition – no visible evidence of work needed	Annual visual monitoring of condition	N/a
T06	*Acer pseudoplatanus* (sycamore)	SM	18.6	50	9	5	3	8	Slight lean to the south; some evidence of past pruning	Annual visual monitoring of condition	N/a
T07	*Aesculus hippocastanum* (Horse chestnut)	SM	16.4	56	5	8	6	7	Some small deadwood throughout crown	Monitor condition and prune to remove deadwood if public access increases	Medium

Age class: Y = young tree; S/M = semi-mature; M = mature; M+ = over mature

The trees surveyed within the parkland are either semi-mature or mature, with forms/ crowns that have been shaped by lack of competition. They are mostly in good condition although some have varying amounts of deadwood and there is evidence of historic pruning on one.

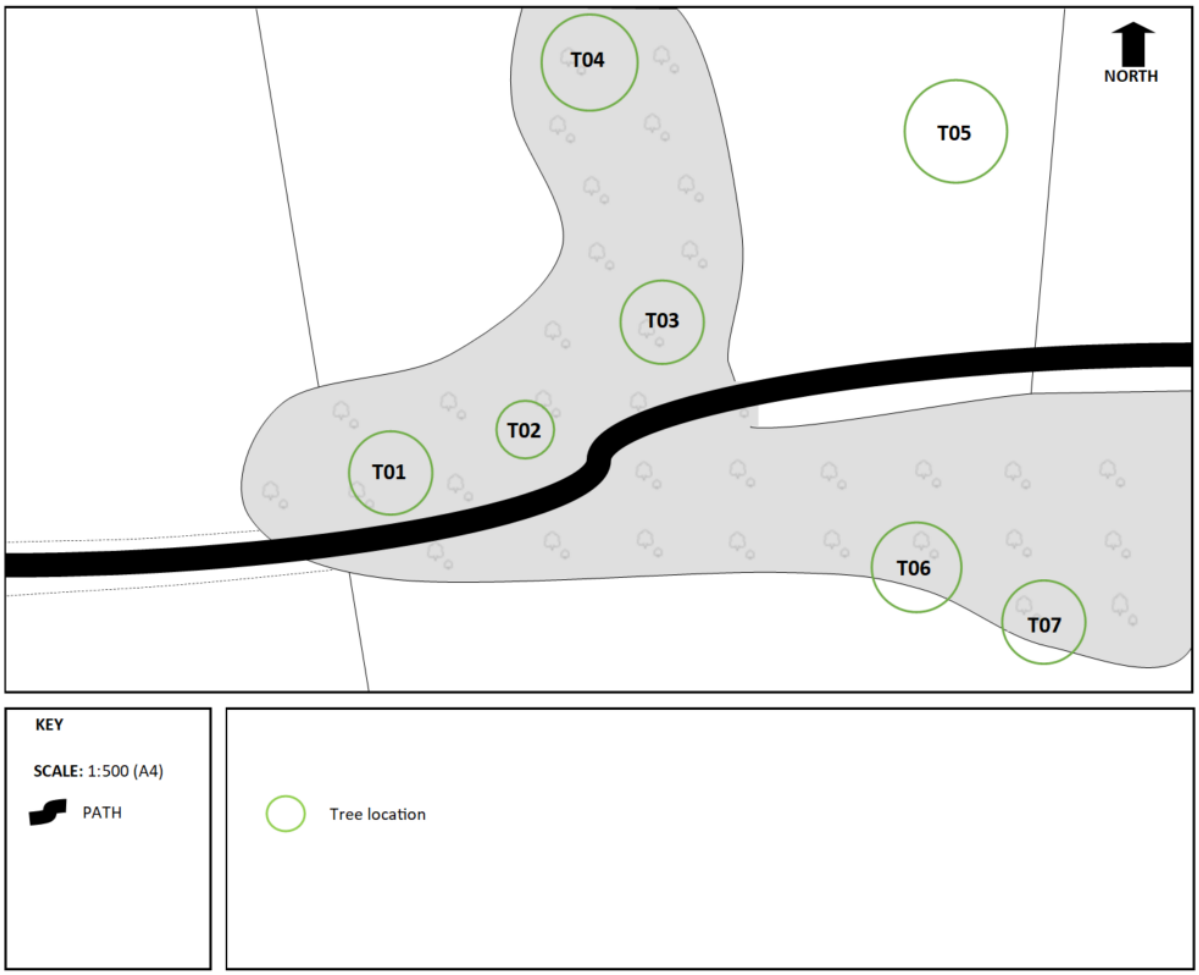
There is clear evidence of dieback due to *Hymenoscyphus fraxineus* on both of the *Fraxinus excelsior* (Ash) trees. Although both are located next to a path, T01 could be retained, but monitored as part of a regular tree inspection programme. I recommend the

other tree (T03) is felled as soon as possible, with appropriate biosecurity arrangements put in place during this work, as it presents a high level of risk due to the extent of decay and the fact that it is leaning towards the path, so if it were to fail it's likely it would fall in that direction. Timber and arisings could be left on site as habitat.

Several of the other trees on the site have deadwood in the crown although mostly, these are small sized branches, although T02 has a large dead branch overhanging the path. Given the parkland appears to be well used by the public, including runners and dog walkers there is a risk someone could be hit by falling deadwood so I recommend T02 is pruned to remove the deadwood as a high priority.

Tree T07 has small deadwood throughout the crown but does not appear to be in an area of high public use so suggest this is monitored.

Tree T02 also has a decay cavity in the stem but it was not possible to determine the extent of any decay from ground level. I recommend a precautionary aerial inspection of T02 to determine the extent of any decay or whether there is evidence of this as a habitat for protected species such as bats.



Commentary

The candidate undertook a comprehensive **tree survey and inspection** identifying and measuring characteristics and features, accurately using technical terminology to satisfy the requirements of the task (appropriate use of scientific names '*Hymenoscyphus fraxineus*' and consistent use of the tree reference number used on their survey report and map 'T01', 'T02' etc. making the report clearer).

The candidate identified and recorded the measured characteristics and features applying strong knowledge and skills to record, present and analyse the information to a high standard. For example, they recorded species using both their common and scientific names. Heights have been recorded accurately and crown spread has been recorded consistently in four directions. Work priorities have been assigned correctly, and specific reasons have been given (e.g. T01, T02, T03, T07).

The candidate applied strong knowledge and understanding of **environment and plant health** and **tree management planning**, resulting in a detailed interpretation of overall

tree/population condition to produce a high-quality report to be used to manage the tree population.

For example, the report contains logical and detailed recommendations for further work or investigation. These recommendations are appropriately prioritised based on perceived level of risk, taking into account considerations such as level of public use of the path and surrounding area and risk of injury.

The site plan has been clearly annotated to show the trees surveyed and their respective locations and sizes.

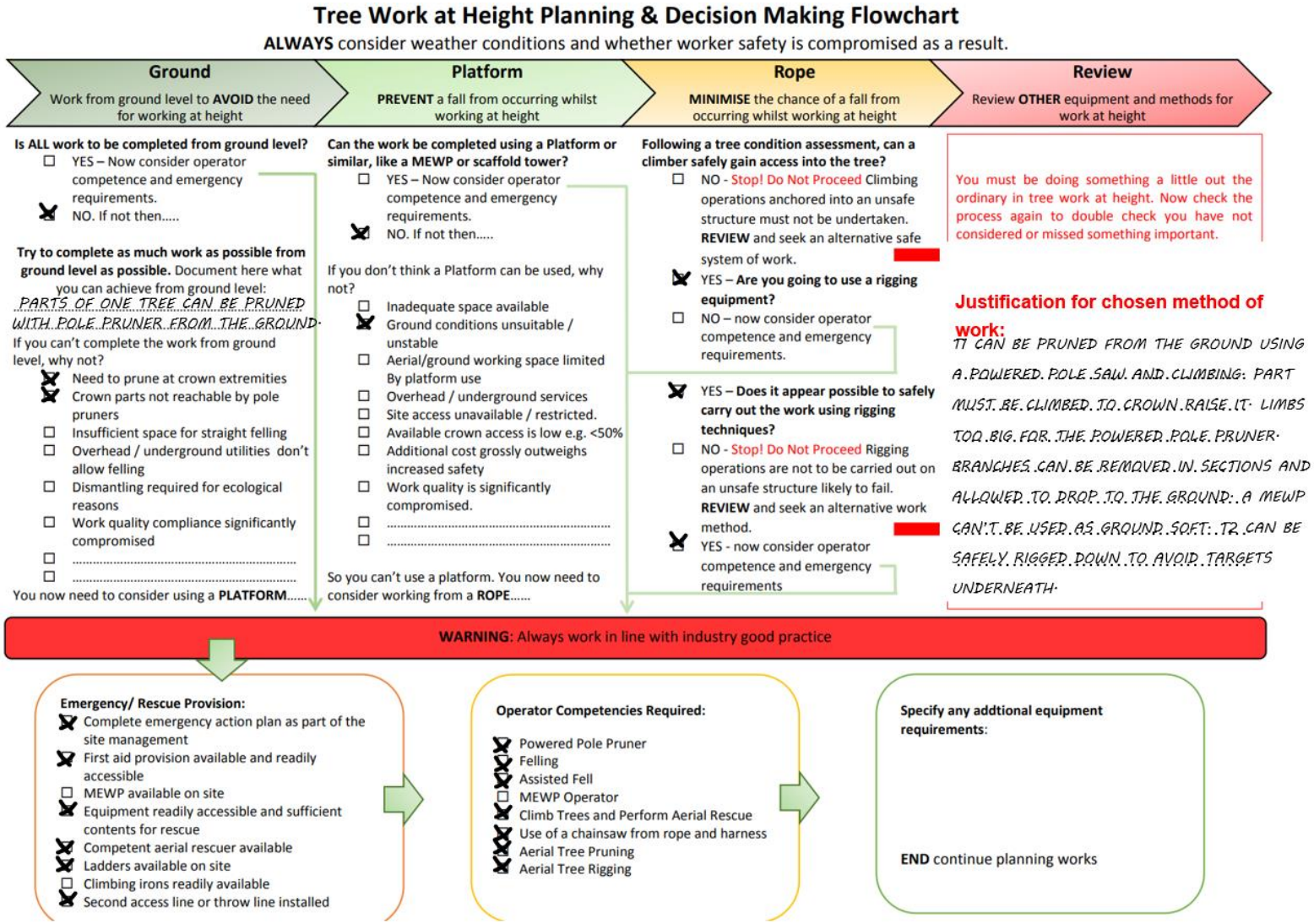
Task 2 – Tree work planning

Evidence contributes to the following:

Performance outcome	Assessment themes
PO9 Undertake complex arboricultural operations	PO9: Health and safety PO9: Environment PO9: Prepare for complex arboricultural operations

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this version of GSEM
	part a) work at height risk assessment			
work at height risk assessment	PO9: Health and safety PO9: Prepare for complex arboricultural operations	√		√
	part b) method statement and c) constraints map			
method statement and constraints map	PO9: Health and safety PO9: Environment PO9: Prepare for complex arboricultural operations	√		√

Candidate evidence - Work at height risk assessment



Tree Work at Height Planning & Decision Making Flowchart

ALWAYS consider weather conditions and whether worker safety is compromised as a result.

Ground — Work from ground level to **AVOID** the need for working at height

Is ALL work to be completed from ground level?

- ☐ YES – Now consider operator competence and emergency requirements.
- ☒ NO. If not then.....

Try to complete as much work as possible from ground level as possible. Document here what you can achieve from ground level:

PARTS OF ONE TREE CAN BE PRUNED WITH POLE PRUNER FROM THE GROUND.

If you can't complete the work from ground level, why not?

- ☒ Need to prune at crown extremities
- ☒ Crown parts not reachable by pole pruners
- ☐ Insufficient space for straight felling
- ☐ Overhead / underground utilities don't allow felling
- ☐ Dismantling required for ecological reasons
- ☐ Work quality compliance significantly compromised
- ☐ .....
- ☐ .....

You now need to consider using a **PLATFORM**.....

Platform — **PREVENT** a fall from occurring whilst working at height

Can the work be completed using a Platform or similar, like a MEWP or scaffold tower?

- ☐ YES – Now consider operator competence and emergency requirements.
- ☒ NO. If not then.....

If you don't think a Platform can be used, why not?

- ☐ Inadequate space available
- ☒ Ground conditions unsuitable / unstable
- ☐ Aerial/ground working space limited By platform use
- ☐ Overhead / underground services
- ☐ Site access unavailable / restricted.
- ☐ Available crown access is low e.g. <50%
- ☐ Additional cost grossly outweighs increased safety
- ☐ Work quality is significantly compromised.
- ☐ .....
- ☐ .....

So you can't use a platform. You now need to consider working from a **ROPE**.....

Rope — **MINIMISE** the chance of a fall from occurring whilst working at height

Following a tree condition assessment, can a climber safely gain access into the tree?

- ☐ NO - Stop! Do Not Proceed Climbing operations anchored into an unsafe structure must not be undertaken. **REVIEW** and seek an alternative safe system of work.
- ☒ YES – **Are you going to use a rigging equipment?**
- ☐ NO – now consider operator competence and emergency requirements.
- ☒ YES – **Does it appear possible to safely carry out the work using rigging techniques?**
- ☐ NO - Stop! Do Not Proceed Rigging operations are not to be carried out on an unsafe structure likely to fail. **REVIEW** and seek an alternative work method.
- ☒ YES - now consider operator competence and emergency requirements

Review — Review **OTHER** equipment and methods for work at height

You must be doing something a little out the ordinary in tree work at height. Now check the process again to double check you have not considered or missed something important.

Justification for chosen method of work:

IT CAN BE PRUNED FROM THE GROUND USING A POWERED POLE SAW AND CLIMBING: PART MUST BE CLIMBED TO CROWN RAISE IT· LIMBS TOO BIG FOR THE POWERED POLE PRUNER· BRANCHES CAN BE REMOVED IN SECTIONS AND ALLOWED TO DROP TO THE GROUND: A MEWP CAN'T BE USED AS GROUND SOFT: TZ CAN BE SAFELY RIGGED DOWN TO AVOID TARGETS UNDERNEATH·

WARNING: Always work in line with industry good practice

Emergency/ Rescue Provision:

- ☒ Complete emergency action plan as part of the site management
- ☒ First aid provision available and readily accessible
- ☐ MEWP available on site
- ☒ Equipment readily accessible and sufficient contents for rescue
- ☒ Competent aerial rescuer available
- ☒ Ladders available on site
- ☐ Climbing irons readily available
- ☒ Second access line or throw line installed

Operator Competencies Required:

- ☒ Powered Pole Pruner
- ☒ Felling
- ☒ Assisted Fell
- ☐ MEWP Operator
- ☒ Climb Trees and Perform Aerial Rescue
- ☒ Use of a chainsaw from rope and harness
- ☒ Aerial Tree Pruning
- ☒ Aerial Tree Rigging

Specify any addtional equipment requirements:

END continue planning works

Commentary

Candidate has completed the work at height risk assessment following the process correctly. They have justified their decisions in line with industry best practice. Justification for using rope access methods for T1 & T2 is clear and in line with industry **health and safety** guidance. In following the process, they have complied with legislation, and have met industry best practice by specifying a second access line to be installed as part of the Emergency/Rescue Provision. The candidate has included all operator competencies relevant to the work being carried out.

This evidence in isolation provides minimal differentiation between grades, however it supports the method statement (task 2) and risk assessment (task 3) to demonstrate the candidate's understanding of how to **prepare for complex arboricultural operations** and their ability to enter the industry to begin to work in the occupational area.

Candidate evidence - Method statement and constraints map

Method Statement

TASK- Two trees require crown lifting and one is to be felled using an assisted felling technique. Arisings to be removed from site.

Site- Area around the three trees will be cordoned off with barrier tape and warning signs. Warning Tree work signs to be placed at the points on the site plan (Marked with red triangle). No Access signs to be put in place as indicated on the map (Marked as red circle). Within the exclusion zone marked by the barrier tape drop zones and work zone's to be identified. Banksperson in place during cutting operations.

Emergency Procedures- Two people on site will have aerial rescue training and equipment available. Mobile phones on site. Emergency plan will be part of the site-specific risk assessment. Second access line will be place in T1 and T2 in case rescue is needed.

Environment - Spills kit will be available to deal with any fuel spills. Final check of site for wildlife, final check of trees for nesting birds/bats before commencing work.

First Aid- Two people on site will be first aid trained and a first aid kit available. Kit will be placed next to the fuelling point plus risk assessment/ emergency procedure. All on site will have personal first aid kits.

Staff Competence-

- All staff on site will have basic chainsaw as well as chipper operation.
- Two members on site will be qualified in tree climbing and aerial rescue.
- Climber carrying out the tree pruning must have chainsaw from a rope and harness.
- Climber carrying out rigging must have aerial rigging.
- The person carrying out the crown raising using the powered pole pruner must be trained to use it.
- Two members on site will be trained in assisted felling to complete the assisted fell.
- The above along with adequate supervision will help ensure compliance with the requirements of legislation including Health & Safety at Work Act and the Provision & use of work equipment regulations (PUWER).

Equipment-

- Woodchipper
- Powered pole pruner
- 2x ground saws
- 1x top handled chainsaw
- 2x climbing kits (with record of up-to-date LOLER inspection)

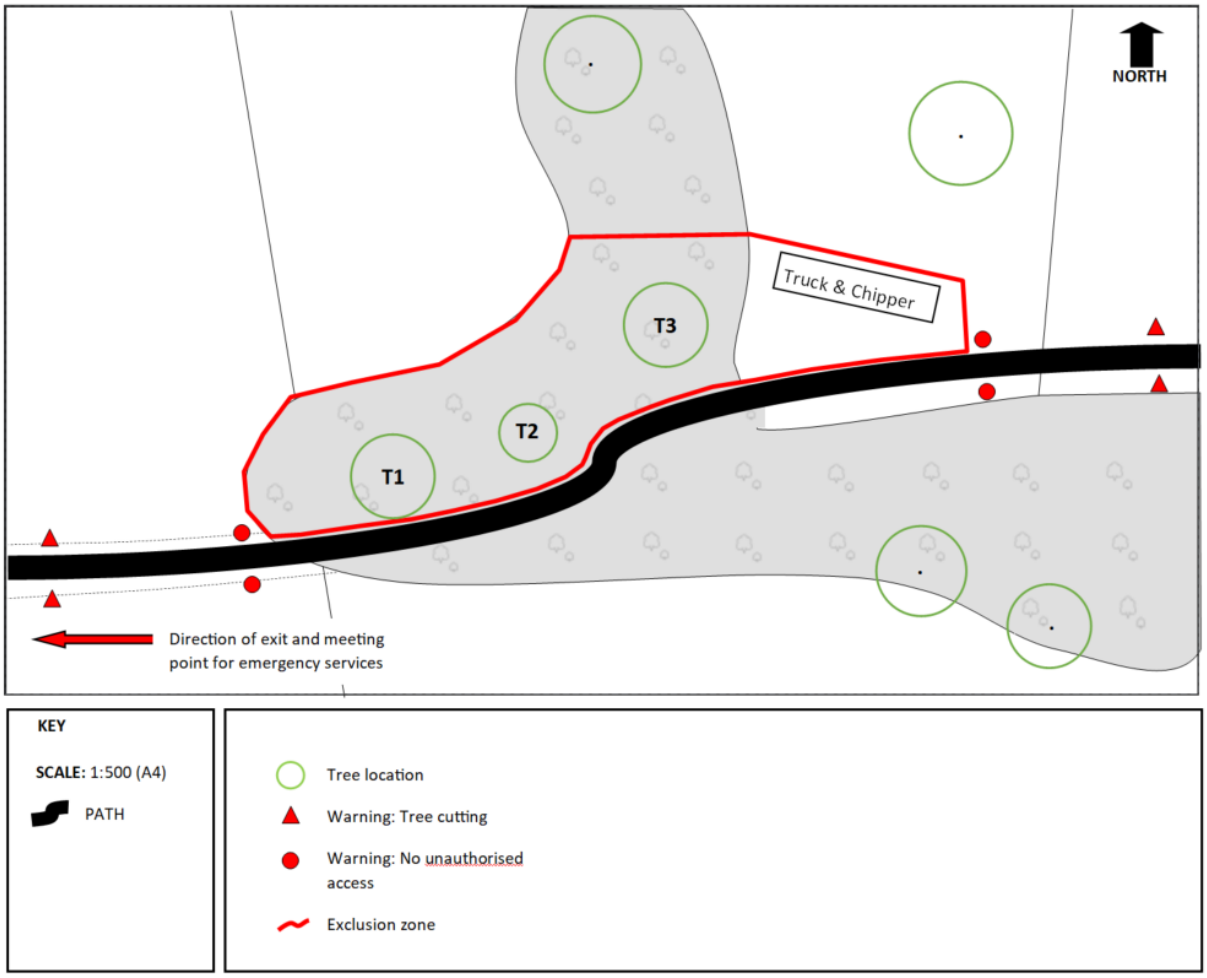
- Rigging kit (with record of up-to-date LOLER inspection)
- Assisted felling kit.
- Fuel and tools
- Signs and barrier tape
- First aid kit (personal kit with each team member and a squad kit in the vehicle)
- Hand saws
- Blower and clean up kit.
- Spills kit.
- PPE – as a minimum:
    - Climbers: Chainsaw trousers (Type C), chainsaw boots, climbing helmet, eye protection, hearing protection, gloves, high visibility clothing.
    - Ground workers: Chainsaw trousers (Type A or C), chainsaw boots, helmet, eye protection, hearing protection, gloves, high visibility clothing.

Job Stages-

- Site-specific risk assessment & emergency plan to be completed and everyone on site to be briefed and sign it.
- Set site up with warning signs, no access signs and barrier tape placed as per plan. Work zones and drop zones to be designated within the exclusion zone. Banksperson to be in place during all cutting/felling.
- Truck & chipper is be located as indicated on the map.
- Fuel saws and all climbing equipment to be checked.
- Climber installs climbing lines in T1 plus the rescue line.
- Checks for wildlife to be made.
- the other members can prune with the powered pole pruner.
- Once this is complete the arising from T1 can be chipped.
- Climber access T1 and gains a working anchor point. Before descending to the branches to be removed.
- Ground staff check the chainsaw and send it up to the climber.
- Climber gets into working position to start removing branches. Check with ground staff that drop zone is clear before cutting.
- Once the tree is crown raised to the required height climber descends tree and removes equipment from the tree.
- All arisings are chipped, and timber stacked for later removal.
- Using the assisted felling kit T3 is felled and processed.
- T2 needs rigging- climber to access the tree and the ground staff set up and sort the rigging equipment.
- Ropes/Pulleys sent up to the climber
- Tree dismantled with clear communication to climber at all times.
- Arisings dealt with as per client specification (chipped and removed on day of works, timber stacked for later removal in stable stacks no higher than 1m).
- All equipment to be put on the truck.
- Ensure site is left safe, clean, and tidy.

This template may be modified by expanding fields only.	
Relevant health and safety legislation: Health & Safety at Work Act Management of Health & Safety at Work Regs. Work at Height Regulations Lifting operations & lifting equipment regulations (LOLER) Provision & use of work equipment regulations (PUWER) AA Technical Guides	**Relevant environmental legislation:** Wildlife and Countryside act COSHH

Constraints map



Commentary

Candidate has completed a detailed method statement mentioning the important relevant legislation, indicating an understanding of **health and safety**, and **environmental** legislation and industry best practice.

Comprehensive equipment list is provided to carry out the work effectively and safely.

Good consideration of the **environment**, e.g. provision of spills kit, and the candidate has included checks for wildlife and nesting birds/bats before commencing work.

The candidate has used excellent knowledge and understanding of how to **prepare for complex arboricultural operations**. Their “Job stages” section describes a safe and efficient sequence of operations giving the team carrying out the work a clear plan to follow. Points covering the establishment of works zones and drop zones within the exclusion zone on the work site, and the use of a second line for rescue access indicates a strong

understanding of best practice guidance in TG1. Checks for wildlife have been recommended although ideally this would be done earlier in the sequence in order to be more efficient.

Method statement is consistently linked to the site plan, referencing individual trees, locations and features (e.g. locations and types of signage).

Candidate has produced a clearly annotated constraints map showing the work site layout and location of warning signs and exclusion zones as per industry best practice. The key is clear to indicate to anyone what the symbols mean. They have also clearly marked the direction to go to meet and subsequently bring the emergency services to the site if required.

Task 3 – Carry out tree work

Evidence contributes to the following:

Performance outcome	Assessment themes
PO3 Operate and maintain forestry and arboricultural machinery	PO3: Health and safety PO3: Maintain machinery PO3: Operate machinery
PO8 Maintain trees	PO8: Health and safety PO8: Perform tree and site maintenance
PO9 Complex arboricultural operations	PO9: Health and safety PO9: Prepare for complex arboricultural operations PO9: Perform complex arboricultural operations

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this version of GSEM
	part a) prepare for operations			
risk assessment	PO3: Health and safety PO8: Health and safety PO9: Health and safety	√		√
emergency plan	PO3: Health and safety PO8: Health and safety	√		√
	parts b)-g) carry out tree work			
assessor observation	PO3: Maintain machinery PO3: Operate machinery PO8: Perform tree and site maintenance PO9: Prepare for complex arboricultural operations PO9: Perform complex arboricultural operations		√	√

photographs	PO8: Perform tree and site maintenance PO9: Perform complex arboricultural operations		√	√ (placeholder for part d)

Candidate evidence - risk assessment

Candidate's name	Sample Candidate	Enrolment number	CG12345
Task / Activity	Ground based and aerial pruning with chainsaws, Rigging, Felling	Location	Centre training area
Assessor's name	Sample Assessor	Date	23/03/2023

Item no.	What are the hazards?	Who might be harmed and how?	What precautions are already in place?	Risk rating (High / Medium / Low)	What further action is necessary?	Action by who and when?	Residual risk rating (High / Medium / Low / Trivial)
1	Fall from Height	Climber	Climbing kit fit for purpose. Trained climber. Persons on site trained in arial rescue.	High	Select suitable anchors. Check new anchors and load them where practicable before removing the old ones.	Climber, ongoing	Medium
2	Falling/flying timber/debris	Ground staff/ Public-struck by Timber	Signage to alert passers-by PPE: helmet with visor	High	Ensure escape routes are clear. Check area clear before final felling cuts, banksman if working near roads or paths. Do not enter drop zone unless climber indicates it is safe to do so.	Operator and Site supervisor- Prior to start of work (PPE and signage) and throughout operations (further actions).	Medium
3	Chainsaw: Noise Vibration	Climber/Ground staff Hearing loss/damage HAVS	Suitable ear protection, Correctly maintained chainsaw	Medium	Pre-start checks, anti-vibration mounts, check and maintain condition of chain. Check condition of exhaust.	Operator, ongoing	Low

4	Chainsaw use: Contact with chain	Climber/Ground staff Cut by moving chain	Trained operator. Suitable PPE: chainsaw trousers (type C), chainsaw boots, gloves, helmet with visor.	Medium	Check chain condition and tension regularly, appropriate use of chainbrake, appropriate work positioning.	Operator, ongoing	Low
5	Assisted felling: winching equipment / falling timber/debris	Chainsaw operator/ Struck by winching equipment / falling timber/debris	Trained operator Winching equipment fit for purpose Gloves when handling rope	Medium	Trees identified with defects or decay should be felled using assisted felling techniques. Correctly configured pulling system, do not enter danger zones.	Operator and work site supervisor, ongoing	Low
6	Manual handling	Operator/ Muscular strains/injuries	Lifting aids and correct manual handling techniques to be used.	Medium	Organise site/operations to minimise manual handling	Operator, ongoing	Low
7	Chipper use: Noise	Ground staff Hearing loss/damage	Suitable ear protection: ear defenders	Medium	Regular maintenance of chipper	Operator, ongoing	Low
8	Chipper use: Operation of chipper Clearance of blockages	Ground staff Entanglement / hit by debris	Trained operators, suitable PPE: Helmet with visor, gloves, non-snag clothing	Medium	Ensure forks in branches are cut to avoid potential blockages. Machine turned off before clearing any blockages.	Operator, ongoing	Low
9	Fuelling	Climber & Ground staff, spills, ignition	Use of combi can	Low	Designate fuelling area away from vehicles and sources of ignition. Spills kit available on site.	Operator and work site supervisor, ongoing	Low

Date: 23/03/2023	Risk assessment carried out by: Sample Candidate

Commentary

A thorough and detailed risk assessment was completed by the candidate using the template provided, utilising excellent knowledge and understanding of **health and safety**.

Hazards on site have been comprehensively identified (including all major hazards) with detailed control measures specified according to legislation and industry best practice. Detail is included such as specifying type C chainsaw trousers are to be worn. Risk ratings appropriate and suitable additional controls have been specified.

Information provided on the risk assessment was clear enabling all on site to understand the hazards and the controls to be put in place to manage them during operations. The candidate has demonstrated strong understanding of how to reduce risks, for example, falling timber and debris with a high-risk rating but with controls identified and put in place risk level was able to be reduced to medium.

In carrying out the risk assessment the candidate has demonstrated strong understanding of the risk assessment process, the operation that is to take place and legislation and industry best practice.

Candidate evidence – emergency plan

Candidate's name	Sample Candidate	Enrolment number	CG12345
Task / Activity	Prepare for complex Arboricultural operations	Location	Sample centre training area
Assessor's name	Sample Assessor	Date	03.06.23

Worksite Location:	Sample centre training area		
OS Grid Reference:	SE 3491 9374		
What3Words Reference:	large. small. medium		
Meeting point for emergency services:	Main entrance- SD 343 963 – decoding.sugar.clean		
Type of vehicle access: (e.g. surfaced road / unsurfaced track / off-road or 4x4 vehicle required)	Well surfaced private road accessible from public highway. Road Vehicle		
Nearest A&E hospital:	Sample Hospital	Phone:	01339 780780 999 / 112 (emergency)
Location of nearest mobile phone signal / landline:	Full signal on site with battery charged on mobile - Nearest landline is in the reception of main building.		
Site/landowner contact name:	Joe Brown- Centre Manager	Phone:	07822 884444
Emergency contact name:	Sample Assessor	Phone:	07833 884555
Other details / comments:	Defibrillator available at reception of main building.		

Commentary

Candidate completed a thorough emergency procedure for the arboricultural operations giving detailed information to enable emergency services to locate the work site, e.g. providing accurate what3words and grid references for site and meeting point. All other fields have been completed with useful details e.g. information on condition of access road, landline location and availability of a defibrillator. The plan contains comprehensive information to be used in the event of an emergency.

This evidence in isolation provides minimal differentiation between grades, however it supports the risk assessment to demonstrate the candidate's understanding of **health and safety** and ability to enter the industry to begin to work in the occupational area.

Assessor Observation Form (Task 3b-g – Carry out tree work)

Task	Assessment component number
Task 3 – carry out tree work	8717-405
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO3: Maintain machinery PO3: Operate machinery PO8: Perform tree and site maintenance PO9: Prepare for complex arboricultural operations PO9: Perform complex arboricultural operations

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
General preparation: • Ensure health and safety controls are in place • Select and wear appropriate compliant personal protective equipment (PPE) • Select appropriate locations to fuel and start chainsaws safely • Trees to be worked on are checked for signs of ill health or structural weaknesses • Establish felling directions/drop zones considering tree form and site conditions • Prepare and establish exclusion zone, work zones & drop zone • Prepare trees prior to felling/pruning	General preparation: Site set up according to legislation, and industry best practice. Correct PPE selected for the task. Comprehensive risk assessment and emergency plan completed, hazards identified, and suitable controls put in place. Emergency plan clear and concise with detailed information including grid references and what3words to identify locations. Correct equipment selected for the task and candidate made their pre-use checks of their climbing kit and the rigging kit to be used. Fueling point was established away from sources of ignition within the work zone. Trees were thoroughly assessed and the candidate verbally summarised their findings, confirming there were no signs of defects/ill health. Exclusion zone was established with the use of barrier tape and warning signs. Candidate identified drop and work zones for the three trees to be pruned and felling direction identified for the assisted fell. Branches to be pruned using the powered pole pruner and those to be removed by the climber established.
b) Pre-use checks of the chainsaw, field maintenance • Chainsaw checked over before starting work • Identification of any maintenance required • Routine maintenance carried out according to industry best practice and manufacturer's instructions – e.g. sharpening, chain tension adjustment.	b) The candidate fuelled the saw, and the chain tension was adjusted. The candidate sharpened the chain, marking the cutter they started on ensuring all cutters were sharpened evenly. Candidate demonstrated pre-use checks of the chainsaw: • chain tension and condition checked for safe and effective use • safety features checked for condition and function • external nuts and bolts checked for security • chainsaw contains sufficient fuel and chain oil for operations. Saw started as per handbook and best practice. Post start checks were then carried out – candidate checked the function

Assessor observation	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
c) Crown raise from the ground using a pole saw or powered pole pruner: • Correct pruning cuts used to remove material. • Carry out work to always maintain health and safety and in line with legislation (BS3998) and industry good practice. d) Climb and perform a crown raise and dead wooding using a chainsaw and hand saws. • Tree climbed according to TG1 industry best practice. • Work positioning achieved, and general practice carried out according to TG2 industry best practice. • The following cutting techniques must be demonstrated during the operation: o Step cuts (freefall and handheld) o Sink cuts (freefall and handheld) o Final pruning cuts • Correct pruning cuts used accurately to remove material. • Fluidity / efficiency of work rate and practice. • Carry out work to always maintain health and safety and in line with legislation (BS3998) and industry good practice.	of the chainbrake, on/off switch and checked the chain was oiling and was not creeping. c) Powered pole saw was checked prior to use Good range of cuts used to remove the limbs appropriate to the weight of the sections- showed inboard and outboard cuts as well as accurate sink cuts. Pole saw held at 60 degrees or less during cutting so that branches don't slide down when cut and hit the operator or they end up under the piece being cut. Accurate final pruning cuts with hand saw being used to finish them off improving accuracy. d)Candidate installed their lines and put in a second rescue access line in the tree before accessing the crown, achieving a working anchor point as per the recommendations in TG1. Good anchor point selection. Work positioning achieved as per recommendations in TG2 to remove the limbs. Good planning looking at the overall picture to maximise the amount of work that could be done from each work position selected. Good use of adjustable lanyard to aid this. Candidate demonstrated the range of cuts required. Step cuts freefall and handheld were accurate. Good accurate sink cuts with effective hinges. Use of hand saw helped as well as the good work positioning. Accurate final pruning cuts Planning and looking at the overall job aided in the efficient and effective completion of the task as well as good work positioning and use of equipment. Health and safety and industry good practice followed, and tree crown raised as per BS3998.

Assessor observation	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
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 data tables as appropriate. • Select and wear appropriate compliant personal protective equipment (PPE) • Good communication with the climber in line with TG1 industry best practice. • Set up of the lowering device and correct operation. Correct amount of friction required in the lowering device. • General practice and operation of rigging equipment carried out according to TG3 industry best practice • Management of arisings on site during the dismantling operation • Carry out work to always maintain health and safety and in line with legislation (BS3998) and industry good practice. • On completion of the operation equipment must be checked and cleaned. • Site is left in a safe and tidy condition.	e) Worked with the climber to come up with an outline plan and estimate the weight of pieces to be removed considering the equipment being used. Reference tables of timber weights used to aid in the rigging operation Correct PPE was selected as per legislation and industry best practice for the operation. Communication with the climber was very good at all times as per TG1, quick to send chainsaw up to the climber as well as the lowering equipment when requested. Candidate set up the lowering device correctly and efficiently before setting up the rigging line all the time communicating with the climber. Working with the climber set up the right amount of friction most of the time to allow pieces to run which reduces loading on the equipment, anchor points and any risk to the climber from shock loading the system. Work carried out in line with best industry practice as detailed in TG3. Arisings were managed well during the operation systematically dealing with each branch as it came down clearing the drop zone. This meant clear up after was efficient and easier to complete. Work was carried out as per BS3998. Equipment was packed up and loaded into the truck on completion of the work with the site left clean, tidy, and safe.

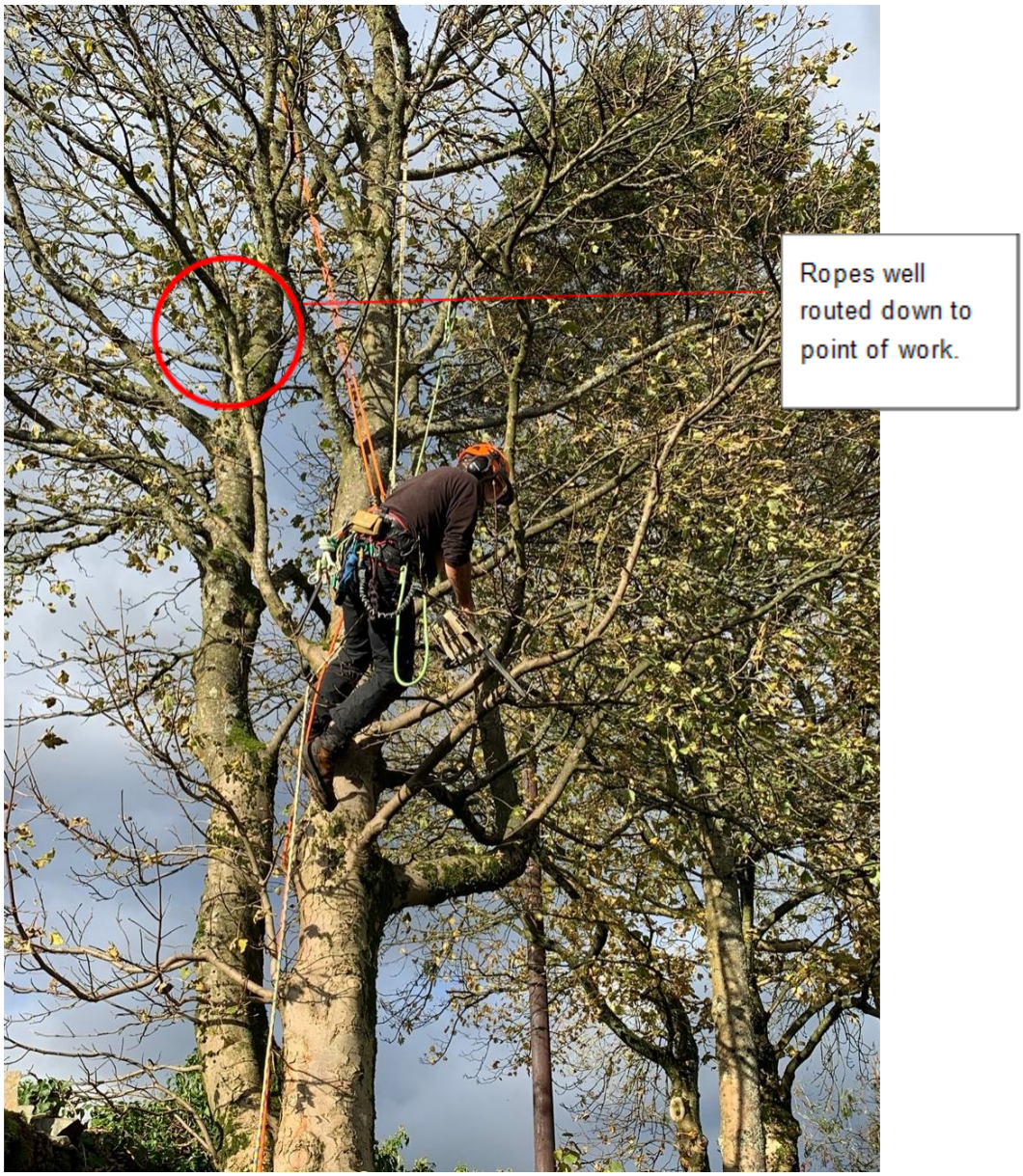
Assessor observation	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
f) Perform assisted fell using a winch based or rope-based system. • Select an appropriate hand winch or rope-based system and associated compatible equipment. • Check that all equipment is fit for purpose • Select a suitable anchor point • Set the system up considering the load to be moved • Apply suitable felling cuts and sequence of operations to complete the assisted fell safely. • On completion of the operation, winching/pulling system must be dismantled, checked, and returned to storage area. • Site is left in a safe and tidy condition.	f) One of the trees to be felled had some basal decay to ensure the tree went in the desired direction the candidate set up a rope based assisted felling system. Candidate selected compatible equipment with the same safe working load, and checked the equipment was fit for purpose with no damage. Correct PPE was selected and used. The candidate set up a rope-based system, identifying all danger zones. The system set up had a three to one mechanical advantage. Rope set up around the anchor tree using a running bowline and then a figure of nine was tied in to connect the hardware for the winching system. The rope was put up into the tree using poles over a branch approximately 2/3 up, down to the base where a bowline was tied. This meant the system was retrievable if required. Clear communication with the operator on the rope-based system. Tree felled using a safe corner cut releasing the tree and then operator directed to pull the tree over using the rope-based system. Equipment was dismantled and stowed out of the way and the tree processed to the same standard of the previous trees. All equipment disinfected and stowed in the vehicle and signage packed away. Site inspected and ensured that it was safe and left tidy.
g) Use a manually-fed wood chipper to deal with the arisings • Operate the wood chipper in line with FISA 604 industry best practice. • Carry out work to always maintain health and safety and in line with legislation and industry good practice. • Carry out work to avoid environmental damage in line with legislation and industry good practice. • Site is left in a safe and tidy condition.	g) Chipper operated in line with industry good practice with correct PPE used. Material had been prepared well to ensure forks were cut so branches fed through easily and didn't get stuck. Position when feeding brash into the hopper was to the side as per best practice. Area in front of the machine kept clear ensuring no trip hazards and aiding efficiency of the operation. Site was left safe clean and tidy.

Assessor observation	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*

Assessor signature	**Date**
Sample Assessor	23/03/2023

Photographic/video evidence

Photo evidence: d) Series of photos showing work position achieved in the tree: 2 photos of candidate attached with their additional anchor enabling them to prune a larger work area without having to move it:



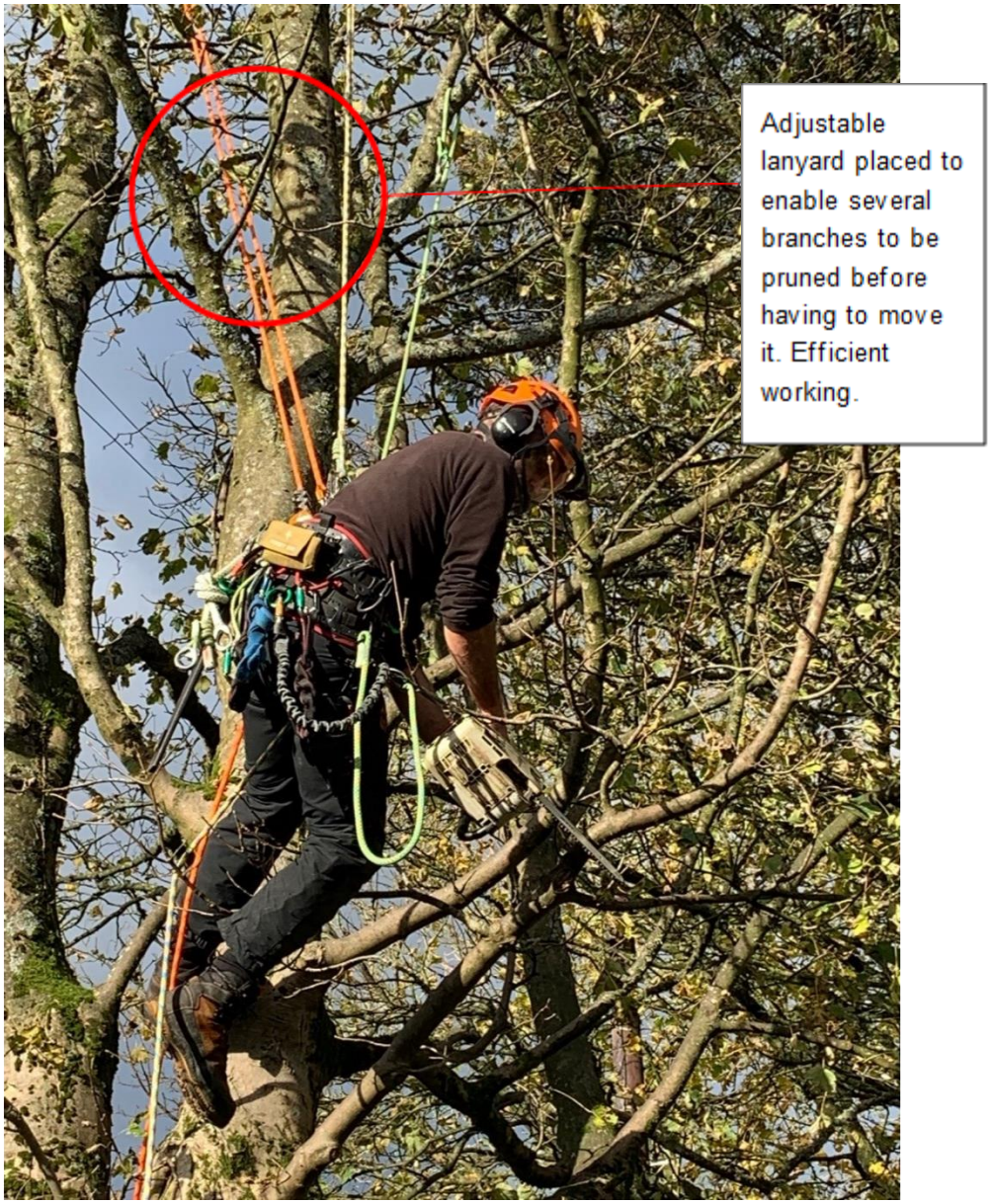


Photo evidence: f) Series of photos showing set up of assisted fell: Attachment points (tree, anchor), winch position:


Three to one mechanical advantage rope-based system set up.
Anchor Point.

Retrievable anchor set up on tree to be felled.

Commentary

The candidate demonstrated consideration of health and safety and the environment when setting up the site and **preparing for complex arboricultural operations**, e.g. combi-can placed away from watercourses and sources of ignition, used correct PPE and complied with the risk assessment throughout.

The candidate showed excellent knowledge and skill to **maintain machinery**, conducting field maintenance of the chainsaw to a high standard e.g. marking cutter to ensure even sharpening of the chain, comprehensive post-start checks including checking the chain was oiling.

They skilfully performed **tree/site maintenance** with the powered pole pruner and demonstrated a range of appropriate cuts, which helped reduce the risk of the saw being taken with the cut piece, showing strong understanding of industry best practice and BS3998.

Strong knowledge and skill was demonstrated when **operating machinery.** The candidate operated the chainsaw safely to achieve accurate cuts (“accurate sink cuts with effective hinges”, “accurate final pruning cuts”). Chipper was operated safely but with potential for improvements in efficiency.

The candidate demonstrated strong knowledge and skill when **performing complex arboricultural operations:**

The climbing was carried out to a high standard with a suitable working anchor achieved and second access line put in the tree, for rescue as per TG1.

A range of appropriate cuts were demonstrated which were accurate, in part because of the candidates skilled work positioning and use of the adjustable lanyard to aid in work positioning. Also planning and looking at the overall work prior to starting aided in the work positioning that helped the flow of work, efficiency, and accuracy of cuts.

The rigging operations were carried out well, with the candidate efficiently using the equipment to achieve the correct amount of friction when working with the climber. Systematic in managing the arisings during the operation.

Candidate demonstrated strong understanding of industry best practice related to assisted felling. For example, the candidate placed the rope two thirds the height of the tree, and the system was set up so that it was retrievable. Anchor was correctly selected at a safe distance twice the height of the tree from the tree to be felled.

Equipment selected was fit for purpose and compatible to the safe working load of the winch. Rope system set up correctly (see photo).

Candidate showed excellent understanding and skill, attaching to anchor tree using a running bowline and then a figure nine tied to attach the hardware to (see photo). This knot could be undone more easily than a figure of eight after being loaded.

Tree felled using an accurate and appropriate holding cut with clear communication with the operator pulling the rope-based system having established a plan prior to starting to fell.

Chipper was operated safely and efficiently e.g. “Area in front of the machine kept clear ensuring no trip hazards and aiding efficiency of the operation”.

Task 4 – Planting plan

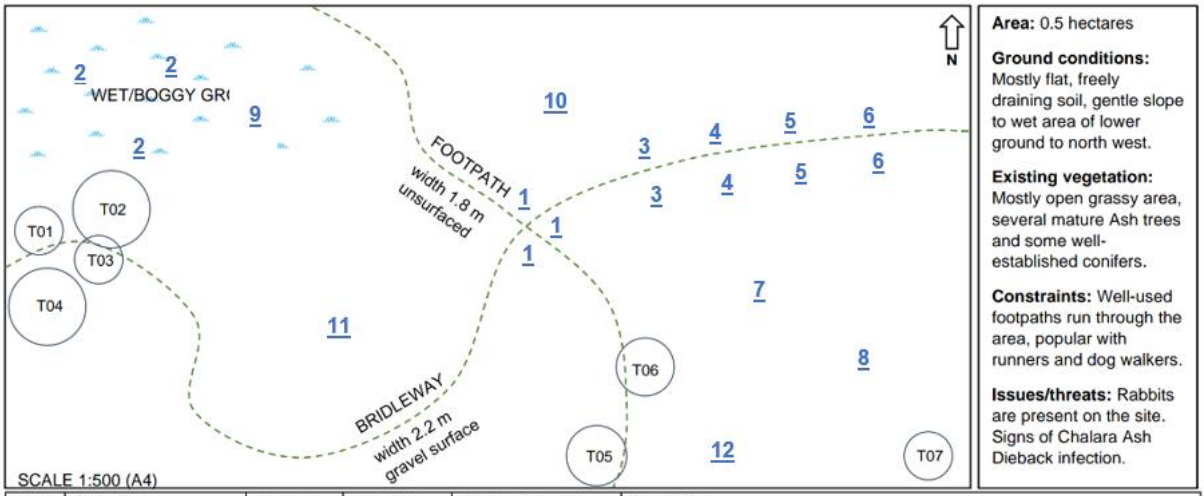
Evidence contributes to the following:

Performance outcome	Assessment themes
PO2 Grow trees and woodlands	PO2: Plan for establishment (tree stocks) PO2: Plan for establishment (establishment plans) PO2: Establish trees

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this version of GSEM
Planting plan	PO2: Plan for establishment (tree stocks) PO2: Plan for establishment (establishment plans) PO2: Establish trees	√		√

Candidate evidence – Planting plan

Map



Tree	Species	dbh cm	Height m	Crown spread m	Condition
T01	*Fraxinus excelsior*	25	16.5	5.1	Extensive crown dieback indicating infection – Chalara Ash Dieback (*Hymenoscyphus fraxineus*)
T02	*Fraxinus excelsior*	34	21.1	8.0	Early signs of crown dieback indicating infection – Chalara Ash Dieback (*Hymenoscyphus fraxineus*)
T03	*Fraxinus excelsior*	24	15.0	4.9	Extensive crown dieback, indicating infection – Chalara Ash Dieback (*Hymenoscyphus fraxineus*)
T04	*Fraxinus excelsior*	32	26.0	8.1	Early signs of crown dieback indicating infection – Chalara Ash Dieback (*Hymenoscyphus fraxineus*)
T05	*Thuja plicata*	50	28.8	6.5	Good condition, no visible signs of decay.
T06	*Thuja plicata*	46	27.0	6.0	Good condition, no visible signs of decay.
T07	*Fraxinus excelsior*	24	15.5	4.8	Good condition, no visible signs of decay.

Species list

	Species	Common name	Qty.	Justification	Stock type	Size
1	*Acer palmatum*	Japanese maple	3	This species is suited to the well-drained soil. Provides interest for visitors with red autumn leaves.	Container grown whip	100 cm in 3-litre pot
2	*Metasequoia honshuenensis*	Dawn redwood	3	Fast growing deciduous conifer, will be suited to the wet area to the NW.	Container grown whip	100 cm in 3-litre pot
3	*Quercus rubra*	Red oak	2	Hardy and grows in most conditions. Red autumn colour will contrast with the other oaks. Tolerant to atmospheric pollution so is ideal for the urban	Container grown whip	50 cm in 3-litre pot

	Species	Common name	Qty.	Justification	Stock type	Size
				setting of the site (edge of town). Trees 3, 4, 5, and 6 will form an avenue along the bridleway.		
4	*Quercus robur*	English oak	2	Hardy and grows in most conditions. Orange autumn colour will contrast with the red oak. Trees 3, 4, 5, and 6 will form an avenue along the bridleway.	Container grown whip	50 cm in 3-litre pot
5	*Quercus petraea*	Sessile oak	2	The arboretum will showcase different oak species. Trees 3, 4, 5, and 6 will form an avenue along the bridleway.	Container grown whip	50 cm in 3-litre pot
6	*Prunus avium*	Wild cherry	2	Flowering tree to provide seasonal interest. Trees 3, 4, 5, and 6 will form an avenue along the bridleway.	Container grown whip	50 cm in 3-litre pot
7	*Fagus sylvatica*	Common beech	1	Suited to well drained soil. Planted well away from the wet/boggy area.	Container grown whip	50 cm in 3-litre pot
8	*Fagus sylvatica Atropurpurea*	Copper beech	1	Complements the common beech.	Rootballed standard	3.2 m
9	*Salix sepulcralis*	Weeping willow	1	To be planted in the wet area to the NW of the arboretum to take advantage of the damp soil conditions	Container grown whip	120 cm in 9-litre pot
10	*Tilia cordata*	Small leaved lime	1	Native tree	Rootballed standard	2.5 m
11	*Sequoiadendron giganteum*	Giant redwood	1	Focal point for the arboretum, long living and can grow to 50m+ height	Container grown standard	1.8 m in 55-litre pot

	Species	Common name	Qty.	Justification	Stock type	Size
12	*Tsuga heterophylla*	Western hemlock	1	Another conifer for the collection, located with the existing mature conifers.	Container grown whip	100 cm in 7.5-litre pot

Planting specification

Stock type: All container grown whips, apart from trees 8 & 10 (rootballed standards) and tree 11 container grown standard.

Size:
Whips: 50-120cm
Standards: 3.2m (tree 8) 2.5m (tree 10), 1.8m (tree 11)

Spacing:
Trees no. 3-6 along the bridleway min. 3m spacing between trees and 4m from centre of bridleway.
See map for individual locations of other trees.

Planting method (container grown trees): pit planting with stake and tree tie for support

- Plant handling requirements: remove pot immediately before planting and tease out roots.
- square planting pit at least 75mm larger than the pot
- Depth of planting pit no greater than the level of the existing compost from the container.
- Sides and base of the pit loosened to allow roots to grow out of the planting pit
- Single stake driven into the bottom of the planting pit.
- Position the tree in the pit with top of existing compost level with final soil level
- Backfill hole in stages firming the soil around the roots
- Final backfill not firmed in order to allow for settlement.
- Tree attached to the stake with tree tie nailed to stake (for the 100 cm plants only)
- Spiral guard installed to protect from rabbit damage
- Tree watered after planting.
- Install metal tree cage (if using)

Planting method (rootballed standards): pit planting, 2 stakes, cross-spar and tree tie for support

- Dig square planting pit at least 75mm larger than the rootball
- Depth of planting pit no greater than the level of the existing rootball
- Sides and base of the pit loosened to allow roots to grow out of the planting pit
- Two stakes driven into the bottom of the planting pit either side of the rootball.
- Stakes no more than a third the height of the tree. (drive in or cut to size as necessary)

- Position the tree in the pit with top of rootball level with final soil level
- Place irrigation pipe into bottom of hole.
- Backfill hole in stages firming the soil around the rootball
- Final backfill not firmed in order to allow for settlement.
- A cross spar nailed to the stakes.
- Tree attached to the spar with an appropriate tree tie ensuring that the tree stem is not rubbing against the spar.
- Tree watered after planting.
- Install metal tree cage (if using)

Suppliers

Guilds Plant Supplies Ltd. [for purposes of GSEM the supplier is fictional]

All plants sourced from this supplier. Guilds Plants Supplies website shows that they are a responsible source of tree stocks. They have Plant Healthy certification meaning they meet the Plant Health Management Standard so we can be sure that they have high standards of biosecurity. They are based in the UK and use seed sources of local provenance for all of their native species. They are registered to ISO14001 (Environmental management) meaning they have a compliant environmental management system in place. There is also a statement on the website on their commitment to reduce peat use in their production practices.

City Landscape Materials (CLM) Ltd. [for purposes of GSEM the supplier is fictional]

Support and protection sourced from this supplier (spirals, stakes, metal tree cages). CLM website states all wood products are FSC certified.

Factors affecting establishment

- Rabbits – threat to newly planted trees as they may eat and damage unprotected plants, protection installed on all trees (see next section).
- Public access – as the area is used by runners and dog walkers, steps will be needed to keep visitors and dogs on the existing paths to avoid damage to the planted trees – I would recommend placing a public information board at each entry point to the arboretum explaining the species being planted with a map of the arboretum, and asking visitors to keep to the paths and keep dogs under control or on leads. Metal tree guards to be installed on the higher cost broadleaved trees (8 and 10) and the trees lining the bridleway (1, 3, 4, 5, 6) to prevent disturbance from people and dogs.
- *Fraxinus excelsior* infected with *Hymenoscyphus fraxineus* – No planting of any *Fraxinus* species as site is infected. Some of these trees may be dangerous and need to be removed – so there is a small risk of damaging new trees if planted too close.
- Soil conditions – In the wet area to the NE of the site, *Metasequoia honshuenensis* and *Salix sepulcralis* will be planted to take advantage of the wet conditions. The soil pH of 6 is suitable for a wide range of species anbling the arboretum to showcase a range of species.
- Trees stock types and sizes – mainly container grown stock of 50-100cm height, with some rootballed standards to provide instant visual impact (although at a higher cost).

- Aftercare – all trees watered immediately after planting. Standards will have irrigation pipes installed for further aftercare.

Support and protection methods

Container grown trees will be supported with single stakes and tree ties. Spiral guards will be installed to prevent rabbit damage.

Standards will be supported with two stakes, cross spar and tree ties.

Metal tree guards will be installed to protect from people and dogs. The metal tree guards will prevent people and loose dogs from disturbing/damaging the new trees and provide some protection against vandalism.

Costing

Trees:

	Species	**Unit cost**	**Qty.**	**Total**
1	*Acer palmatum*	£22.50	3	£112.50
2	*Metasequoia honshuenensis*	£28.00	3	£84.00
3	*Quercus rubra*	£25.00	2	£50.00
4	*Quercus robur*	£25.00	2	£50.00
5	*Quercus petraea*	£25.00	2	£50.00
6	*Prunus avium*	£25.00	2	£50.00
7	*Fagus sylvatica*	£25.00	1	£25.00
8	*Fagus sylvatica Atropurpurea*	£220.00	1	£180.00
9	*Salix sepulcralis*	£60.00	1	£60.00
10	*Tilia cordata*	£220.00	1	£220.00
11	*Sequoiadendron giganteum*	£412.00	1	£412.00
12	*Tsuga heterophylla*	£50.00	1	£50.00
				Total £1,343.50

Planting costs:

Item	**Unit cost**	**Qty.**	**Total**
Rabbit spiral	£1.00	17	£17.00
Stake 1.5m	£1.10	23	£28.60
Metal tree cage	£125.00	13	£1,625.00
Irrigation tube	£19.92	3	£59.76
Planting cost (whip)	£0.50	17	£8.50
Planting cost (standard)	£18.00	3	£54.00
Install support/protection (whip)	£0.75	17	£12.75
Install support/protection (standard)	£5.00	3	£15.00
			Total £1,760.85

Total cost = £3,164.11

Commentary

The candidate applied excellent knowledge, understanding of **tree stocks** and **establishment plans** to interpret the brief and carry out relevant research to inform the content of their plan.

The candidate competently and thoroughly interpreted technical information, applying strong technical knowledge and skills to analyse the information and develop a comprehensive **plan** which met the requirements of the brief, and would be easy to interpret for anyone using the plan (e.g. specific tree locations are clearly indicated on the map, detailed information on spacings are included in the planting specification). The layout of the trees on the plan shows clear though has been put into the locations of individual and groups of trees (e.g. creating an avenue along the bridleway).

They consistently used technical terminology accurately, including full scientific and common names for all species.

The candidate showed excellent understanding of **tree stock** types and how to **establish trees** considering a comprehensive range of factors resulting in consistently suitable decisions on stock types, sources/suppliers and planting methods/locations/protection, for example selecting larger more mature stock types for some of the trees to provide instant visual impact, and providing additional protection for the higher cost trees, and trees close to high-traffic areas.

Species selected are consistently suitable for the site and soil conditions, and detailed, well-reasoned justifications are provided with consideration of the species and site/environmental requirements/characteristics (e.g. planting willow and redwoods in the wet area of the site). Many of the justifications are more focused on the aesthetic value of the species chosen (this is appropriate for the purpose of the task being a public arboretum), but they also referenced other soil conditions (pH of 6 being suitable for a wide range of species).

The candidate applied the necessary calculations (e.g. differences in costs for different types of tree stock) and completed them with a high level of accuracy.

It should be noted that for this task the overall amount spent by the candidate in the plan is not a significant factor in demonstrating the grade – the grade is determined by how well the evidence meets the requirements of the task, the brief, and the indicative content in the marking grids.

Task 5 – Maintenance plan

Evidence contributes to the following:

Performance outcome	Assessment themes
PO7 Manage tree populations	PO7: Environment and plant health PO7: Tree management planning
PO8 Maintain trees	PO8: Environment and plant health PO8: Plan for tree and site maintenance

Evidence	Assessor observation	Candidate producing	Assessor producing	Included in this version of GSEM
maintenance plan	PO7: Environment and plant health PO7: Tree management planning PO8: Environment and plant health PO8: Plan for tree and site maintenance	√		√

Candidate evidence – Maintenance plan

Maintenance requirements and schedule for the newly planted trees:

It is important following planting to make sure the trees have the best possible chance of successful establishment. They should be checked annually, and more frequently where there is a risk from drought, competition or damage (e.g., dogs). During the drier summer period from May to August the trees should be watered weekly using the irrigation pipes, either in the morning or evening. The trees in the wet area to the NE of the site are at a lower risk of drought. Competition should be minimised by removing grass and weeds from a $1m^2$ area around the base of the trees by hand and mulch levels topped up. A herbicide could be used but this is not recommended due to the risk of spray drift onto the trees. It is also important to make sure each tree is in good condition and checked for damage, pests, disease or crossing branches and formatively pruned where appropriate. If necessary, trees should be replaced if they are badly vandalised. The spiral and metal tree guards, stakes and ties should be checked to make sure they are providing protection or support and replaced or adjusted, particularly if there is a risk they could damage the trees. Maintenance vehicles should be kept to the bridleway, and the site around each tree should be monitored for soil compaction, especially those adjacent to the footpath and bridleway.

	Species	**Year**	**Maintenance requirements**
1	*Acer* Japanese maple	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Mulch if necessary to reduce weed competition. Inspect for damage, pests or disease monthly and consider formative pruning if appropriate. Adjust or replace tree stakes and ties if necessary. Check and replace spiral guards if necessary.
2	Dawn redwood	0-3	Planted in wet/boggy area, still requires watering in very dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Mulch if necessary to reduce weed competition. Inspect for damage, pests or disease. Adjust or replace tree stakes and ties if necessary. Check and replace guards if necessary.
3	*Quercus rubra* Red oak	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Inspect for damage, pests or disease monthly and consider formative pruning if appropriate. Adjust

	Species	Year	Maintenance requirements
			or replace tree stakes and ties if necessary. Check and replace spiral guards if necessary.
4	*Quercus robur* English oak	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Inspect for damage, pests or disease monthly and consider formative pruning if appropriate. Adjust or replace tree stakes and ties if necessary. Check and replace spiral guards if necessary.
5	*Quercus petraea* Sessile oak	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Inspect for damage, pests or disease monthly and consider formative pruning if appropriate. Adjust or replace tree stakes and ties if necessary. Check and replace spiral guards if necessary.
6	*Prunus avium* Cherry	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Inspect for damage, pests or disease monthly and consider formative pruning if appropriate. Adjust or replace tree stakes and ties if necessary. Check and replace spiral guards if necessary.
7	*Fagus sylvatica* Beech	0-3	Regularly water during dry summer months. Clear grass and weeds within 1m. Mulch if necessary to reduce weed competition. Inspect for damage, pests or disease and consider formative pruning if appropriate. Adjust or replace tree stake and tie if necessary. Check and replace guard if necessary.
8	*Fagus sylvatica* Copper beech	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Inspect for damage, pests or disease monthly and consider formative pruning if appropriate. Adjust or replace tree stakes and ties if necessary. Check and replace guards if necessary.
9	*Salix sepulcralis* Weeping willow	0-3	Planted in wet/boggy area, still requires watering in very dry summer months. Clear grass and weeds within 1m twice per year. Mulch if necessary to reduce weed competition. Inspect for damage, pests or disease and consider formative pruning if appropriate. Adjust or replace tree stake and tie if necessary. Check and replace spiral guard if necessary.
10	*Tilia cordata*	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to

	Species	Year	Maintenance requirements
	Lime		reduce competition. Inspect for damage, pests or disease monthly and consider formative pruning if appropriate. Adjust or replace tree stakes and ties if necessary. Check and replace guards if necessary.
11	Giant redwood	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Inspect for damage, pests or disease monthly. Adjust or replace tree stakes and ties if necessary. Check and replace guards if necessary.
12	*Tsuga heterophylla* Hemlock	0-3	Regularly water weekly during dry summer months. Twice a year clear grass and weeds from around the base by hand to reduce competition. Inspect for damage, pests or disease monthly. Adjust or replace tree stakes and ties if necessary. Check and replace guards if necessary.

Maintenance requirements and schedule for the existing mature trees:

There is clear evidence of dieback due to *Hymenoscyphus fraxineus* on four of the *Fraxinus excelsior* (Ash) trees. Although all four are located next to the bridleway, T02 and T04 could be retained as there is no safety critical work needed but monitored as part of a regular tree inspection programme. I recommend the other two trees (T01 and T03) are felled as soon as possible, because of the risk to users of the bridleway, with appropriate biosecurity arrangements put in place during this work. These trees should be removed in line with a method statement which removes the need for hand cutting or canopy access (e.g. felled using machinery) to minimise risk to operators. This is the safest method, as once a tree is infected its structural integrity declines quickly making the timber extremely brittle.

Timber and arisings should be left on site. There is a fifth Ash tree (T07) on site, but it is not close to either the path or the bridleway and not showing any signs of dieback so only requires normal monitoring of condition. All work should reflect good practice such as the AA's Ash Dieback Guidance. Both Thuja trees (T05 and T06), although beside the path are in good condition and therefore only require normal regular monitoring to identify any concerns.

Tree ID	Tree species	Maintenance requirements	Year
T01	*Fraxinus excelsior*	Remove tree as close to bridleway	0-1
		Monitor tree condition until tree is removed	Monthly

T02	*Fraxinus excelsior*	Regularly monitor tree condition	monthly
T03	*Fraxinus excelsior*	Remove tree as close to bridleway	0-1
		Monitor tree condition until tree is removed	Monthly
T04	*Fraxinus excelsior*	Regularly monitor tree condition	Monthly
T05	*Thuja plicata*	Annual visual monitoring of condition during winter and summer	0-3
T06	*Thuja plicata*	Annual visual monitoring of condition during winter and summer	0-3
T07	*Fraxinus excelsior*	Annual visual monitoring of condition during winter and summer	0-3

Maintenance requirements and schedule for the footpath and bridleway:

It is important that the rights of way are maintained so they are safe and suitable for public users. As they are well used, they should both be checked monthly to identify maintenance requirements. The surface of the footpath should be checked for trip hazards and natural surface vegetation growth scheduled to be cut bi-monthly between April and October to ensure it is accessible for walkers. The surface of the bridleway should be checked to ensure it is even and repaired with matching gravel (e.g., fill in holes) as necessary to minimise risks to walkers, cyclists or horse riders. Both the footpath and bridleway should have overhanging or protruding vegetation removed to maintain the width for access and not hinder users, although this only needs to be done twice a year and can be scheduled alongside other maintenance work. The height of overhanging vegetation should be kept at least 2.4m above the footpath, and 3m above the bridleway.

Right of way	**Maintenance recommendations**	**When**
Path	Inspect regularly for maintenance	Monthly
	Mow the path during spring and summer so it can be used by walkers	Bi-monthly between April and October
	Remove overhanging or protruding vegetation	Twice a year
Bridleway	Inspect regularly for maintenance	Monthly
	Remove overhanging or protruding vegetation	Twice a year

	Repair surface damage with matching gravel	Twice a year

How arisings from maintenance and management activities will be managed:

There should be appropriate biosecurity arrangements in place during this work, taking into account vehicles, equipment and individuals. As there is ash dieback present on site, all work should be considered as a high-risk activity. Before leaving the site, soil and organic debris must be removed from boots, clothing and all equipment, before being cleaned and then sprayed with an appropriate disinfectant until it runs off. If possible, vehicles should be parked off-site. If this is not possible they should be kept to the gravel bridleway, with tyres and wheels cleaned with disinfectant before leaving site.

Non-ash prunings and small branches arising from bridleway and footpath maintenance should be chipped onsite. These can either be used onsite or removed and recycled by the contractor. Any large branches or timber can be removed and converted into firewood, or left stacked as habitat piles. The chip or firewood could be sold to generate income. There may be some timber big enough to be considered suitable for conversion into posts or boards.

Ash arisings could be left on site or burnt on site to minimise disease spread. Alternatively, logs and timber could be removed for sale, so long as soil/debris/leaf-litter is removed before leaving site.

Commentary

The planned post-establishment maintenance recommendations show a strong understanding of watering and competition management, as well as monitoring for support needs, damage, pests and diseases. The justifications are detailed and consider an extensive range of factors, including damage from multiple sources such as dogs and vandalism.

In respect of the existing trees, the candidate has demonstrated excellent consideration of **tree management planning** – the recommendations are highly appropriate and on the whole suitable for each individual species. The candidate has considered the species, planting location and timings when making recommendations for irrigation. The candidate makes logical, prioritised recommendations for maintenance work, taking into account considerations such as risk to the public using the path. The management of rights of way incorporates the key considerations, with comprehensive detail and appropriate timings which reflect the differences in surfaces and users, showing strong understanding of how to **plan for tree and site maintenance**.

The decision to remove the trees showing signs of *Hymenoscyphus fraxineus* is valid, and they have identified the need to monitor tree condition until the work is done. There is

consideration of potential for generation of income from arisings, and recommendations for management of arisings are suitable. Biosecurity recommendations are detailed and show strong understanding of **environment and plant health** and the current approach to risk rating biosecurity.

Task 6 – Planting

Evidence contributes to the following:

Performance outcome	Assessment themes
PO2 Grow trees and woodlands	PO2: Plan for establishment (tree stocks) PO2: Establish trees

Evidence	Assessor observation	Candidate producing	Assessor producing	Included in this version of GSEM
assessor observation	PO2: Plan for establishment (tree stocks) PO2: Establish trees		√	√
photographs	PO2: Plan for establishment (tree stocks) PO2: Establish trees		√	placeholder

Assessor Observation Form (Task 6 - planting)

Task	Assessment component number
Task 6	8717-405
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO2: Plan for establishment (tree stocks) PO2: Establish trees

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage. **Assessor observation**	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
• Select tools, equipment and resources: selection of planting spade suitable for the stock type and size to be planted. • Check the condition of the plants, **report any defects**: check roots, foliage, size, health • Prepare planting stock for planting: plants handled with care, prepared for planting • Plant trees using a suitable technique (**assessors should adapt this to suit specific planting conditions/requirements**) • Dig planting pit to suitable shape and depth • Sides and base of the pit loosened appropriately	Candidate correctly selected and systematically checked all hand tools for damage and cleanliness, handling them and replacing them safely. Appropriate PPE was worn throughout the task (safety boots, gloves). The candidate handled the trees correctly and made a thorough inspection of the tree condition, including the roots. The candidate reported that some foliage was damaged and that there was also some minor desiccated foliage on one of the trees. A square pit was carefully dug to the required depth. The sides and bottom of the hole were thoroughly loosened using a fork. The wrapping was removed carefully and the root ball was thoroughly inspected. Wrapping was neatly put aside for disposal. The tree was positioned accurately in the pit and the depth adjusted slightly by placing soil underneath the roots then

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage. **Assessor observation**	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
• Appropriate number and size of stakes driven into the bottom of the planting pit • Place irrigation pipe into bottom of hole if using. • Backfill hole in stages firming the soil around the rootball • Final backfill • cross spar nailed to the posts • Tree attached to the spar with an appropriate tree tie • Tree watered after planting.	rechecking the nursery line until it was level with the surrounding soil level. Stakes were handled correctly and placed at the correct distance and angle from the tree, driven in using a hammer to the required height. Irrigation pipe was carefully placed in the hole in the correct position. The candidate carefully backfilled the hole and firmed in the soil in stages to ensure no air gaps, before completing the back fill, levelling the soil and double checking the position and straightness of the tree. The candidate checked the appropriate height and nailed a cross spar to the stakes. A tree tie was attached to the cross spar and tightened appropriately to support the tree. The tree was carefully watered in stages to ensure the soil was fully and sufficiently irrigated. A spiral guard was checked and placed carefully on the tree causing no damage, and the candidate ensured it was firm to the ground. The candidate took time to check all the stages and to ensure all material and tools were tided away.

Assessor signature	**Date**
Sample Assessor	23/03/2023

Photographic/Video evidence:

Photo evidence placeholder

- Photo of defective plant – showing some minor damaged to foliage

Photo evidence placeholder

- Photos of planted tree with support installed:
  - one showing overall result with whole tree in frame
  - one close up of attachment of tree to the cross spar with appropriately tightened tree tie.

Commentary

The candidate demonstrated strong knowledge and skills relating to **tree stocks** when **planning for establishment** - they thoroughly checked the condition of the tree stock before planting, and identified both defects to the assessor, accurately reporting the defects observed.

The candidate demonstrated excellent skill to **establish trees**. They planted the tree to a high standard, with excellent regard for the health and initial establishment of the tree using an effective planting technique, for example they adjusted the depth of planting and firmed in the soil systematically in stages. The candidate correctly used a tree tie to support the tree, ensuring it was not overly tight or loose, resulting in conditions for successful **establishment of the tree**. The planting specification was fully met with efficient working demonstrated throughout.

Task 7 – Boundary maintenance

Evidence contributes to the following:

Performance outcome	Assessment themes
PO8 Maintain trees	PO8: Plan for tree and site maintenance PO8: Perform tree and site maintenance

Evidence	Assessor observation	Candidate producing	Assessor producing	Included in this version of GSEM
assessor observation	PO8: Plan for tree and site maintenance PO8: Perform tree and site maintenance		√	√
photographs	PO8: Perform tree and site maintenance		√	placeholder

Assessor Observation Form (Task 7 – boundary maintenance)

Task	Assessment component number
Task 6	8717-405
Candidate name	**Candidate number**
The Candidate	CG12345
Centre name	**Assessment themes**
Sample centre	PO8: Plan for tree and site maintenance PO8: Perform tree and site maintenance

Complete the table below referring to the relevant marking grid, found in the assessment pack. Do not allocate marks at this stage.

Assessor observation	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
Inspect the fence and identify the maintenance or repairs required.	The candidate was allocated a section of post and rail fence and asked to inspect the section and report back on its condition. They identified one post that was damaged and loose, and one section of rail to replace; the post and rail were correctly identified as not being re-usable.
Select the equipment needed to carry out the repairs and maintenance.	The candidate selected appropriate PPE comprehensive tools and equipment to undertake the work and transported these from the store (claw hammer, measuring tape, tamper, spade, spirit level and wire nails). They chose to use a wheelbarrow to transport everything to the site in one journey.
Removal of damaged rail. (If **post and rail fencing** is used)	The candidate removed the necessary rails (both damaged and undamaged), removed the existing nails and placed the damaged post and rails so they were out of the way of the work.
Removal of damaged netting (If **stock fencing** is used).	N/A
Removal of damaged fence post.	They then removed soil from around the post using a rabbiting spade and shovel and took the post out of the ground with the help of an assistant to lift it.

Assessor observation	**Notes –** *detailed, accurate and differentiating notes which identify areas of strength and weakness are necessary to distinguish between different qualities of performance and to facilitate accurate allocation of marks once all evidence has been submitted.*
Installation of post.	The candidate dug out a hole to an appropriate depth using a shove-holer and checked this using a tape measure. The post was placed in the hole with the aid of an assistant (to lift and hold the post in place), and the Candidate used string to check the height of the post aligned with the two adjacent posts. They replaced the soil around the post in stages and used a tamper to firm in the soil. The Candidate used a spirit level several times to ensure the post was upright whilst firming in the soil, and again once the soil had all been tamped in to confirm the post was upright.
Marking and cutting of rail to size if necessary (If **post and rail fencing** is used).	The candidate collected and safely carried one new post and one new rail from the stack of new fencing materials. The rail did not need to be cut to size.
Fixing of rail (If **post and rail fencing** is used).	They then attached all the rails, one at a time using new wire nails and ensured they were appropriately spaced and securely attached. Once finished the Candidate used the spirit level to check the rails were horizontal.
Fixing/tightening of netting (If **stock fencing** is used).	N/A
Carry out the work in a manner that minimises environmental damage. Ensure the site is left in a safe and tidy condition.	The damaged post and rail were safely carried to the allocated area for waste disposal and placed on the pile of existing materials. The nails were placed in the metal recycling skip. The tools and equipment were inspected for damage and returned to the tool store, spade cleaned of soil and the site left in a safe and tidy condition. Throughout, the candidate worked safely and demonstrated a good awareness of relevant factors associated with boundary maintenance. The candidate completed the task within the 2 hours allowed for the task and appropriately directed an assistant to help install the post.

Assessor signature	**Date**
Sample Assessor	23/03/2023

Photographic/video evidence

Photo evidence placeholder
• Photo showing post installed (spirit level against post).

Photo evidence placeholder
• Photo showing fixing of rail: spirit level against rail, secured with 2x nails hammered in flush.

Photo evidence placeholder
• Photo showing finished fence: full installation is in frame. Post and rail installed. Tools, materials and excess soil has been tidied away from the site.

Commentary

The **site maintenance** task was completed within the time allowed, in line with relevant health and safety legislation and regulations. The observed evidence demonstrated strong application of industry best practice guidance for woodland maintenance activities. For example, taking advantage of opportunity to maximise recycling.

The candidate demonstrated strong knowledge and understanding of pl**anning for tree and site maintenance** – they thoroughly interpreted the requirements of the task and selected a comprehensive range of tools, equipment and resources to complete work to a high standard. For example, the Candidate checked the height of the post was in line with the rest of the existing fence line. The post was thoroughly firmed in in stages to achieve a better result.

The candidate prepared site/resources with excellent application of knowledge and skill, using a tape measure to ensure a suitable depth was reached when digging the post hole.

Maintenance of machinery/equipment was carried out with an excellent level of skill for safe and highly efficient operation. The Candidate clearly inspected all tools for damage before returning to the tool store.

The **site maintenance** task was **performed** to an excellent standard that met the specification.

The T Level is a qualification approved and managed by the Institute for Apprenticeships and Technical Education.