T Level Technical Qualification in Agriculture, Land Management and Production

Tree and woodland management and maintenance (Forestry 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 (Forestry 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 Guide Standard Exemplification Material (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 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 requirement 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, and is able to enter the industry to begin to work in the occupational area.

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 felling activities.

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

Identify and measure characteristics and features applying excellent knowledge and skills in how to 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
PO4 Manage woodlands to meet objectives.	Environment and plant health. Planning and silviculture. Surveying and measurement.
PO6 Undertake complex felling operations.	Environment. Prepare for complex felling operations.

Evidence	**Assessment themes**	**Candidate producing**	**Assessor producing**	**Included in this GSEM**
	Parts a) and b) survey, report and method statement.			
Survey results and report.	PO4: Environment and plant health. PO4: Surveying and measurement.	√		√
Method statement including annotated map.	PO4: Environment and plant health. PO4: Planning and silviculture. PO6: Environment. PO6: Prepare for complex felling operations.	√		√
	Part c) marking constraints.			
Assessor observation.	PO4: Surveying and measurement. PO6: Prepare for complex felling operations.		√	√
Photographs.	PO4: Surveying and measurement. PO6: Prepare for complex felling operations.		√	√ (partially complete)

Candidate evidence – Survey results and report

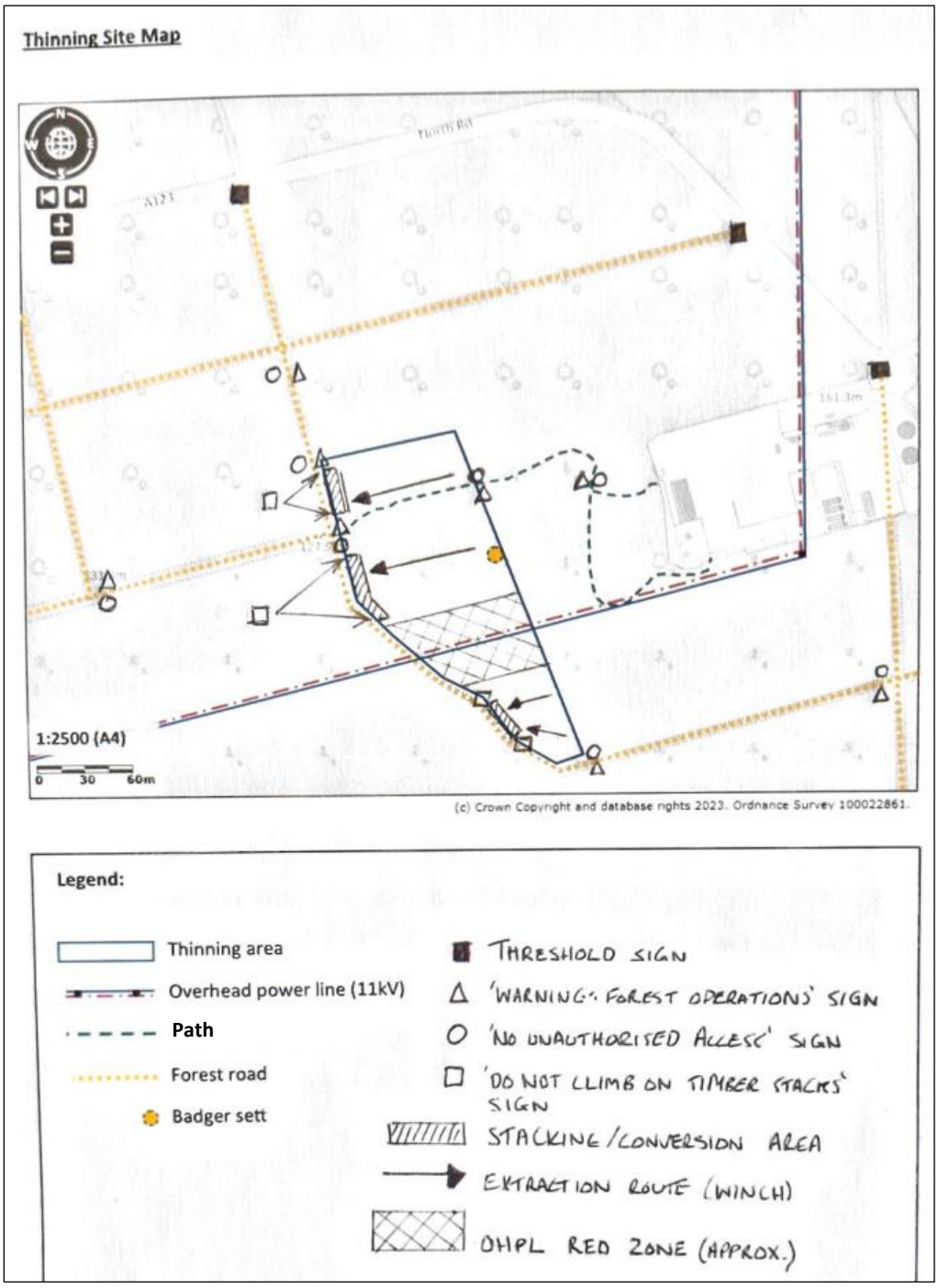
Tree species:	*Pinus sylvestris* (Scots pine) – main crop, even aged, fairly uniform in height, dbh and spacing. *Fagus Sylvatica* (Common Beech) - a small number of these growing near the northern boundary of the thinning area.
Tree health and condition:	*Pinus sylvestris* – appears to have no health issues, trees are mostly in good condition although there was visible squirrel damage in the tops of a few trees in the southern part of the thinning area – stripped bark and one tree with a dead top. This tree could be marked with spray/tape to alert chainsaw operators of the hazard. *Fagus Sylvatica* – most trees in reasonable condition although thin and drawn up within the surrounding pines. One more mature tree with bracket fungus *Meripilus giganteus* (giant polypore) likely to spread to others even if not yet visible. Timber may be brittle so extra care should be taken when felling pine close to this tree.
Pests/diseases:	*Pinus sylvestris* – no visible signs of disease. Squirrel damage as mentioned above. *Fagus Sylvatica* – one tree with large bracket fungus on lower stem - *Meripilus giganteus* (giant polypore).
Constraints:	11 kV overhead power line crossing the southern part of the site. Path crosses the northern end of the site, unsurfaced but well-worn and clearly visible, approx. 1.5m wide. Badger sett on the eastern edge of the site, Grid ref: SU 88294 15379. Forest road borders the site along western edge, good hard gravel surface.

Commentary

The candidate has applied strong **surveying and measurement** skills to the task and identified the species on the site, and given further information about them (e.g. on age structure, uniformity of height, dbh and spacing of the *Pinus sylvestris*, and quantity and approximate location of the *Fagus Sylvatica*). They have recorded all of the other information required by the task (e.g. the main site constraints) and included useful detail on locations and characteristics (e.g. grid reference for the badger sett, details on the path surface, location of the forest road).

The candidate has applied strong knowledge and understanding of **environment and plant health** to appraise tree health and condition and identify signs of pests/diseases/disorders. The candidate has provided detail on the condition of the trees noting squirrel damage including one dead top in the *Pinus sylvestris* (giving approximate location and suggested marking the hazardous tree) and a *Fagus Sylvatica* with *Meripilus giganteus* visible, noting that this may make the tree hazardous due to brittle timber.

Candidate evidence – Method Statement including annotated map



Method Statement

Site location: Brindle forest, North Road, AB1 2CD. Grid ref: SU 882 153

Description of work: Thinning of *Pinus sylvestris* (Scots pine) crop and extraction of timber to forest roadside stacking areas indicated on map. Thinning area approximately 2 ha, flat ground.

Personnel: 2x chainsaw operators, 1x machine operator. Minimum of 2 people on site during all operations.

Constraints:

- 11kV overhead power line crosses the middle of the site.
- Path crosses the northern end of the site.
- Badger sett on the eastern edge of the site, grid ref SU 88294 15379
- Forest road borders the site along western edge

Health and safety:

All operations to comply with *Managing public H&S on harvesting sites (Forestry Commission)*

Hazard: Contact with power line.
Controls: Red zone clearly marked. No working in the red zone. Amber zone clearly marked. Consult network operator before any work in the Amber zone. Amber zone trees felled **away** from the power line. Directional/assisted felling techniques to be used if necessary. All operations to comply with FISA 804 Electricity at work: Forestry. No stacking of timber within 10m of the power line.

Hazard: Machinery movements / flying debris from machinery / wire rope under tension.
Controls: Signage in place to keep site secure. All ground operators to comply with machine risk zones and safe working distances. All on site wearing helmets and hi-vis clothing at all times. Clear communication with machine operator when winching.

Hazard: Injury to people using the path.
Controls: Prohibition signs in place telling people not to enter the thinning area and directing them away (see map). Barrier tape across the path at each entrance to the site. Pause work immediately if any person enters a risk zone.

Hazard: Chainsaws, cuts / falling debris.
Controls: Competent, trained, certified operators. PPE (see equipment list).

Site specific risk assessment – The team leader will complete a risk assessment on-site each day to take into account any changes or additional hazards during the operation and brief the team. This may include changes in ground and weather conditions such as heavy rain/strong winds, new personnel on site, other operations taking place in the forest, etc.

Emergencies and First aid: An emergency plan for the site and task will be prepared before commencing work and made available to all on site, containing details to enable emergency services to locate and access the site in an emergency.
Team first aid kits will be kept in both vehicles and in the tractor, and all staff will carry personal first aid kits.
All staff trained as a minimum in Emergency first aid at work +F.

Training and qualifications:
Machine operators – must hold relevant Certificates of competence for machine and operation being carried out (tractor, wire rope skidder).
Chainsaw operators – must hold Certificates of competence in Chainsaw Maintenance & Cross-cutting, Felling Small Trees up to 380mm.
If assisted fell is required, the chainsaw operator must also hold Certificate of competence in Assisted Felling.
All – Emergency first aid at work +F.

Method:

The management plan (Fig. 1) states that the owner wants to encourage natural regeneration. The use of heavy machinery will be minimised in order to minimise soil compaction and encourage natural regen. Trees marked for thinning will be felled and snedded by chainsaw operators and then timber will be extracted to roadside by wire rope skidder (tractor with purpose-built forestry winch) for processing and stacking. Extraction distances are as short as possible to minimise any need for the tractor to drive into the crop. Extraction routes and stacking areas marked on map, min. 10 m distance from the power line.

All chainsaw felling, processing and extraction to be completed by competent qualified chainsaw operators, and extraction using skidder operated by competent qualified person.
The Red and Amber zones for the OHPL will be clearly marked out on site. Tractor/skidder will not enter the red zone. The tractor/skidder will cross under the power line, unladen, only on the forest road. No winching of material in or through the red zone.
No working in the red zone. The network operator will be consulted before any work is carried out in amber zone. Trees in the amber zone may be felled away from the line with agreement from the network operator. Assisted felling techniques will be used where necessary to direct trees away from the line. A shut down must be agreed before any harvesting takes place in the red zone.

Vehicles:

- 2x Vans

Plant/machinery:

- Skidder (tractor with purpose-built forestry winch)

Hand tools/machinery and equipment:

- Fuel and oil
- Chainsaws
- Felling aids (felling lever, wedges, hammer, hand winch)
- First aid kits
- Oil and fuel spills kits
- Warning signs
- Barrier tape
- Tree marking equipment

PPE:
All staff will wear the following PPE while on site:
Helmets, hi-vis clothing, safety boots.
Chainsaw operators will wear the following PPE:
Helmet, ear defenders, mesh visor, hi-vis clothing, chainsaw trousers, chainsaw boots with steel toe-cap, gloves (chainsaw protective gloves optional).

Gloves **must** be worn when handling wire winch rope.

Environmental:

- Badger sett will be clearly marked and no machinery movements over the sett. Any trees to be felled off the badger set will be felled away from the sett so that they can be winched out without dragging them over the sett.
- Figure 1 states there is evidence of *Phytophthora ramorum* in the forest. Biosecurity procedures will be followed to minimise risk of spread – boots, chainsaws, tractor/skidder and any vehicles used to travel to/from the site will be thoroughly cleaned and disinfected before leaving the site each day.
- Pollution control plan in place – designated refuelling points for machinery. Spills kits available on site. Weather to be monitored and use of machinery to be reviewed if severe wet weather conditions occur, to avoid excessive rutting/erosion.

This template may be modified by expanding fields only.

Relevant health and safety legislation:	**Relevant environmental legislation:**
Health and Safety at Work Act. Management of Health and Safety at Work Regulations. Provision and use of work equipment regulations (PUWER). Health and Safety (First Aid) Regulations.	Wildlife and Countryside Act. Environmental Protection Act. Countryside and Rights of Way Act.

Commentary

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The method statement shows strong consideration of **environment and plant health**, for example the badger sett has been correctly identified as a constraint and measures to avoid damage have been described in detail (e.g. marking and not allowing machinery movement over the area, felling trees growing on the sett away from the set and in the direction of the extraction route).

Environment has also been given detailed consideration in the planning of how the thinning will be carried out, for example the candidate has specified spills kits for oil and fuel within their equipment list, and their 'environmental' section includes measures to protect the badger sett, minimise the risk of spreading disease, and preventing and controlling pollution including diffuse pollution (e.g. 'designated fuelling points for machinery', and monitoring of weather conditions to avoid working in severe wet conditions where heavy rutting may occur).

The method statement and map show the candidate has strong knowledge and understanding of how to **prepare for complex felling operations** with thorough consideration of **planning and silviculture**; the candidate has chosen a safe felling and extraction method (motor-manual felling and extraction with wire rope skidder) and has justified this citing information from the brief (owner's objective being to encourage natural regeneration) and has selected suitable stacking areas and extraction routes (clearly marked on the map). There are several examples of industry best practice: extraction routes do not cross beneath the OHPL or the red zone, the candidate has also included the minimum distance stacks should be from the OHPL. They have identified the major hazards and specified effective controls (e.g. correct measures for OHPL and compliance with FISA 804, compliance with machine risk zones and hi-vis and helmets worn at all times on site). The candidate's layout of warning signs to control access is detailed and meets industry best practice (e.g. provision of threshold signs and advance warning signs on forest roads and path). The candidate has provided detailed, accurate information on operator training/qualification requirements. The annotated map is clear and corresponds with the content of the method statement, and relevant legislation has been listed in the appropriate sections.

Overall, the method statement contains detailed information and the choices made are safe, effective and well-reasoned considering all of the information in the brief/Figure 1 and the task.

Assessor Observation (Task 1 – Thinning site survey)

Task	Qualification number
Task 1) Thinning site survey.	8717-406
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO4: Surveying and measurement. PO6: Prepare for complex felling 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.*
Marking out site constraints on the ground according to candidates annotated map. Path: Identifies appropriate locations for warning signs.	Candidate placed signage in the locations they had specified on their map on the forest road, where the road met the boundary of the thinning area, and at a distance of approximately 2x tree lengths away on the approach to the thinning area. Warning signs placed on the footpath at each end of the site on the boundary of the thinning area and at a distance of approximately 2x tree lengths away on the approach to the thinning area.
Power line: • Identification of vicinity zone appropriate to OHPL voltage given in the brief (refer to information in FISA 804 provided) • measurement of tree height • Red Zone clearly marked on site at a distance equal to the vicinity zone plus one tree	Candidate referred to FISA guide and the site map and task information provided, and identified the vicinity zone should be 2.5 m for an 11 kV line. Candidate visually estimated where the red zone boundary would be and selected a tree to measure. Candidate measured tree height using tape and clinometer, reading a height of 15.3 m. Candidate measured the perpendicular distance from tree to the line using the tape measure, reading 16.8 m (power line location was simulated, pre-marked on the ground by the assessor).

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.*
length, from the power line's location.	Candidate correctly marked the tree as being in the red zone - RZ = one tree length 15.3 m + vicinity zone 2.5 m = 17.8 m). Candidate correctly marked 3 trees in total.
Badger sett: • Trees immediately surrounding the badger sett location clearly marked using an appropriate method (e.g. paint, tape, stakes)	Candidate identified the trees which should be marked around the indicated location of the badger sett and marked them clearly with marking tape.

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

Photo/video evidence

Photo evidence:

- Photo showing method used to measure height.

Photo evidence:

- Photo showing marking of Red Zone trees.

Photo evidence:

- Photo showing marking of exclusion zone around badger sett location.

Commentary

The candidate has demonstrated the knowledge and skill to apply **surveying and measurement** techniques to take accurate measurements; e.g. heights and distances. This evidence in isolation provides minimal differentiation between grades, however the measurements taken enabled the candidate to mark the locations of site constraints accurately.

Strong knowledge and understanding of how to **prepare for complex felling operations** was demonstrated – e.g. the candidate placed warning signs at all entrances to the thinning area, and also at a distance of 2 tree lengths on the approaches (as they had specified on their annotated map). The candidate referred to FISA 804 and interpreted the information to correctly apply the vicinity zone (2.5m) for the voltage of line (11 kV) stated in the brief and task. The candidate also marked the badger sett so that it would be clearly visible to operators approaching from any direction.

Task 2 – Calculate the timber volume expected from the thinning operation

Evidence contributes to the following:

Performance outcome	Assessment themes
PO4 Manage woodlands to meet objectives.	Planning and silviculture. Surveying and measurement.

Evidence	Assessment Themes	Candidate producing	Assessor producing	Included in this GSEM
	parts a) and b) carry out tariff			
Assessor observation.	PO4: Surveying and measurement.		√	√
Photographs.	PO4: Surveying and measurement.		√	√
	part c) calculate timber volume			
Tariff data recording form.	PO4: Surveying and measurement.	√		√
	part d) recommended timber products			
List of timber products with explanations.	PO4: Planning and silviculture.	√		√

Assessor observation (Task 2 – tariff)

Task	Qualification number
Task 2) Calculate the timber volume expected from the thinning operation.	8717-406
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO4: Surveying and measurement

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.*
Selection of required equipment.	Correctly selected girth tape, linear tape, clinometer, and tree marking tape, also used a cane cut to 1.3m to ensure measurement of dbh at correct height.
Carrying out appropriate checks on equipment to ensure accuracy of measurements (e.g. checking girth tapes for stretch).	Checked girth tape for stretch by folding along dividing line on dbh scale and checking alignment. An analog clinometer was used, candidate checked it was reading level before starting.
Compliance with the abbreviated tariff procedures.	Followed the tariff procedure, measuring and recording girth of every marked tree and the height of every 3rd marked tree as per the sampling fractions given (1:1 and 1:3). Used the form correctly to record and keep track of the required measurements.
Recording of data during the tariff.	The candidate completed the recording form carefully and accurately making use of the different sections correctly.
Application of standard measuring conventions (e.g. for dbh, height).	Standard dbh measuring conventions were consistently applied accurately and readings were checked throughout. Where minor

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.*
	errors occurred, the candidate corrected these and amended their recording form accordingly. The clinometer and tape were used correctly to take height readings, and standard conventions were consistently applied when measuring heights for trees on slopes.
Use/reference to provided information sources as required (Task instructions, *Timber Measurement Field Guide/Forest Mensuration: a handbook for practitioners*).	The candidate referred to the Forest Mensuration handbook provided to confirm the correct measurement procedures for dbh and height where they encountered leaning trees and used the information to select the correct measurement procedure.

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

Photographic evidence (Task 2 – tariff):

Photo evidence:

- Photo showing method used to measure height.

Photo evidence:

- Photo showing method used to measure stem diameter.

Commentary

The candidate interpreted the requirements of the task and applied the required woodland **surveying and measurement** techniques (e.g. measurement of heights and dbh) consistently correctly, selecting and using appropriate equipment (e.g. girth tape, linear tape, clinometer) to complete the tariff and capture all necessary information to a high standard.

The candidate demonstrated the required **surveying and measurement** techniques to an excellent standard. Sampling, surveying and measurement techniques were consistently carried out accurately. Strong application of measurement conventions (measuring dbh's, heights, and application of the sampling fractions) resulted in a high level of accuracy.

The candidate consistently made checks (e.g. checking the girth tape and clinometer, checking dbh readings) and referred to the available information sources, checking the correct measurement procedures and following them accurately.

The candidate demonstrated thorough record keeping during the survey, and did this efficiently and logically demonstrating strong knowledge and understanding. For example, the candidate recorded their tally in groups of 3, matching the given sampling fraction of 1:3, enabling them to efficiently track which trees needed to be measured for height during the task.

Candidate evidence – Tariff data recording form

Figure 3: Tariff data recording form (template)

Candidate name	Candidate number
Sample Candidate	CG12345
Assessor name	**Date**
Sample Assessor	23/03/2023
Site/Location	
Example Forest, Sub-compartment 1a.	

Species	Girth sampling fraction:	Volume (height) sampling fraction:
Beech	1:1	1:3

Sampling fractions to be provided by assessor

DETAILS OF VOLUME SAMPLE TREES MEASURED FOR HEIGHT

Tree No.	dbh (cm)	Height (m)	Tariff number
1	26	23.0	46
2	25	21.9	45
3	25	22.0	45
4	24	21.3	44
5	25	22.8	46
6	22	18.7	40
7	24	23.8	47
8	27	22.9	46
9	23	20.1	42
10	23	20.5	43
11	24	21.5	44
12	25	22.2	~~44~~ 45
	Total of tariff numbers:		533
	Average tariff number (rounded down): Total of tariff numbers divided by number of sample trees		44

Note for assessors: add/remove rows as required.

Mean dbh (cm)	**Mean volume** (m^3) From table 46, *Forest Mensuration, a handbook for practitioners*	**Total number of trees**	**Total volume** (m^3) Mean volume x total number of trees
25.4	0.63 m^3	37	23.3 m^3

TALLY OF TREES MARKED

𝍸	𝍸	𝍸	𝍸				
𝍸	𝍸	𝍸					
𝍸	𝍸						
𝍸	𝍸						
𝍸	𝍸						

Note for assessors: add/remove rows as required.

Total number of trees:	37

RECORD OF TREES MARKED AND MEASURED FOR GIRTH

dbh (cm)	Tally of girth sample trees	Total	Total x dbh²
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20	𝍸	1	400
21			
22	𝍸	2	968
23	𝍸	3	1,587
24	𝍸 𝍸	6	3,456
25	𝍸 𝍸	9	5,625
26	𝍸 𝍸	6	4,056
27	𝍸	5	3,645
28	𝍸	3	2,352
29	𝍸	1	841
30			
31	𝍸	1	961
32			
33			
34			
35			
36			
37			
38			
39			
40			
	Total number of measured trees	37	
	Total dbh² (add together results for each dbh class)		23,891
	Mean dbh² (Total dbh² divided by total number of measured trees)		645.7
	Mean dbh (cm) (square root of mean dbh²)		25.4 cm

Note for assessors: add/remove rows and/or change dbh values to suit dbh range of stand.

Commentary

The candidate used the form efficiently to record all necessary information to enable a calculation of timber volume to be made. The information recorded in the field has been presented with excellent clarity to be clearly interpreted when performing the subsequent calculations.

The candidate applied strong knowledge of **surveying and measurement** and how to record and present information in an efficient and logical way. For example, the candidate made use of the 'tally of trees marked' section of the form to keep a separate tally in groups of 3 (since the sampling fraction was 1:3) to keep track of when height measurements were required. The totals in both sections match showing there were no counting errors.

The candidate used the correct methods to calculate the mean dbh and estimate the timber volume, and their application of the methods and calculations shows a high level of accuracy in the result. The tariff numbers which the candidate worked out are correct for all trees, showing that the candidate accurately selected and used the correct alignment charts in the Forest Mensuration handbook. This resulted in a highly accurate estimation of timber volume.

Candidate evidence - List of recommended timber products

Recommended products:

- *Firewood (2·4 m)*
- *Biomass (limbs and tops chipped)*

Many of the marked trees were good quality with straight, clean stems and minimal low branches, but the mean dbh of the marked trees is 25·4 cm which is too small for sawlogs· I recommend that the timber is cut as firewood – beech is an excellent fuelwood and can be sold at a higher price than softwood logs· Also the straight stems makes the timber more marketable because it is easier to process further for example with a mechanical log splitter· Because there are few low branches the timber won't have big knots which also makes splitting easier· Sale of wood from thinnings will provide an income which can be used for further operations to maintain the stand until it reaches a suitable size to be felled for sawlogs·

The total volume produced of 23·3 m^3 is only small· There are usually local markets for firewood which will take small quantities, and haulage/transport costs would also be lower than for sawlogs or other products which would need to be sent to a sawmill·

The rest of the tree including the crown and brash could be put through a chipper and sold as biomass for heating/energy production· Although the quantity from this thinning may be too low, it could be stacked on site and sold once more felling operations have taken place in the forest and generated more brash, instead of wasting the material·

Commentary

The candidate has listed two suitable product types which could be produced from the thinning operation. They have demonstrated strong consideration of **planning and silviculture** factors including timber quality, tree form, dbh and volume in their explanation. The candidate has considered alternative potential products, acknowledging that the quality of the timber may be suitable for sawlogs, but the mean diameter is too small at this stage.

The recommendation to produce firewood as the main product is highly suitable and the candidate has demonstrated a strong understanding of **planning and silviculture** with consideration of timber quality/tree form and species/timber properties when coming to this conclusion. They have fully justified their recommendation, for example noting that straight, clean logs could be easily processed with a mechanical log splitter. They have referenced the mean dbh and total volume calculated in part c) to support their conclusion.

The second recommendation of biomass is less likely for such a small quantity, however the candidate has resolved this by suggesting combining this with brash from other operations to generate sufficient quantities.

Task 3 – Carry out the thinning operation

Evidence contributes to the following:

Performance outcome	Assessment themes
PO3 Operate and maintain forestry and arboriculture machinery.	Health and safety. Maintain machinery. Operate machinery.
PO6 Undertake complex felling operations.	Health and safety. Environment. Perform complex felling 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. PO6: Health and safety.	√		√
emergency plan	PO3: Health and safety.	√		√
	parts b)-e) carry out thinning operation			
assessor observation	PO3: Maintain machinery PO3: Operate machinery PO6: Health and safety PO6: Environment PO6: Perform complex felling operations		√	√
photographs	PO6: Health and safety		√	√

	PO6: Environment PO6: Perform complex felling operations			

Candidate evidence - risk assessment

Candidate's name	**Sample Candidate**	**Enrolment number**	**CG12345**
Task / Activity	Thinning operations	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	Falling timber/debris Flying debris	Chainsaw operator, other workers, public: struck by timber/debris	Trained operators. Maintain safe working distance of 2 tree lengths. PPE: Helmet with mesh visor. Warning signage.	High	Ensure escape routes are clear. Check area is clear before final felling cuts, use banksman if working near forest roads or paths.	Operator and Site supervisor- Prior to start of work.	Medium
2	Chainsaw: Noise and vibration.	Chainsaw operator: Hearing loss/damage HAVS.	PPE: Ear defenders, gloves Anti-vibration mounts on chainsaw. Correctly maintained chainsaw and chain.	Medium	Pre-start checks: condition of exhaust, condition of anti-vibration mounts, condition of chain.	Operator.	Low

3	Chainsaw use: Contact with chain.	Chainsaw operator: Cut by moving chain.	Trained operators. PPE: chainsaw trousers, chainsaw boots, helmet with mesh visor.	Medium	Check chain condition and tension regularly. Apply appropriate felling cuts, snedding and crosscutting technique (as per FISA guidance).	Operator.	Low
4	Assisted felling: winching equipment / falling timber/debris	Chainsaw operator: Struck by winching equipment / falling timber/debris.	Trained operators. Condition of all winching equipment checked. Gloves worn when handling wire rope.	Medium	Trees identified with defects or decay should be felled using assisted felling techniques. Configure pulling system ensuring SWL of all components is compatible and sufficient for load to be moved. Do not enter danger zones.	Operator and work site supervisor.	Low
5	Rough ground drainage ditches, undergrowth.	Chainsaw operator/ Slips, trips, falls, struck by falling tree/debris.	Clear escape routes when felling, ensure good stance when cutting and correct use of chain brake.	Medium	Monitor during operations.	Work site supervisor.	Low
6	Manual handling.	Operator/ Muscular strains/injuries.	Lifting aids and correct manual handling techniques to be used.	Medium	Use an organised felling system to minimise manual handling.	Operator.	Low
7	Lyme disease.	Chainsaw operator/ Site supervisor.	Brief all operatives and tell them to check at the end of the day for ticks.	Medium	Site supervisor to remind all on site at end of day.	Site supervisor before leaving site.	Low

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

Commentary

The candidate completed a comprehensive risk assessment which would keep themselves and others safe, showing an excellent understanding of the requirements of **health and safety** for the task, and the relevant legislation.

They applied excellent understanding of **health and safety** in the context of the task, identifying the relevant hazards and risks. The risk assessment was completed with an excellent understanding of the difference between hazards, risks and control measures, and correctly categorised risk ratings. For example, breaking down the various hazards associated with chainsaw use and providing detailed precautions for each.

They identified a range of detailed precautions to minimise the risks, making clear links between the risks and suitable control measures, e.g. use of specific PPE, operator training, safe working distances and risk zones, checks on equipment.

They considered further control measures that could be applied to reduce the risk ratings. For example, they referenced organised felling systems, consideration of compatibility of winch components, and FISA guidance on felling snedding and crosscutting techniques.

Technical terminology was accurately used e.g. manual handling rather than ‘lifting’, ‘SWL’ of winching components.

Candidate evidence – emergency plan

Candidate's name	**Sample Candidate**	**Enrolment number**	**CG12345**
Task / Activity	Thinning operations	Location	Sample centre training area
Assessor's name	Sample Assessor	Date	23/03/2023

Worksite Location:	Sample centre training area- LA12 8LL		
OS Grid Reference:	SD 341 965		
What3Words Reference:	Shock.streak.twinkled.		
Meeting point for emergency services:	Meet at Moor Top Car park at the gate- SD 343 963 – decoding.sugar.clean.		
Type of vehicle access: (e.g. surfaced road / unsurfaced track / off-road or 4x4 vehicle required).	Unsurfaced muddy forest road with heavy rutting, 4x4 vehicle required.		
Nearest A&E hospital:	Sample Hospital	Phone:	01229 870870 999 / 112
Location of nearest mobile phone signal / landline:	Full signal on site with battery charged on mobile- Nearest landline is in the visitor centre.		
Site/landowner contact name:	Joe Brown- Forester	Phone:	07822 884444
Emergency contact name:	Assessor 1	Phone:	07833 884555
Other details / comments:	Defibrillator available at main building reception.		

Commentary

Candidate completed a thorough emergency procedure for the thinning 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 enter the industry to begin to work in the occupational area.

Assessor Observation Form (Task 3 – thinning operation)

Task	Assessment component number
Task 3) Thinning operation.	8717-406
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO3: Maintain machinery. PO3: Operate machinery. PO6: Health and safety. PO6: Environment. PO6: Perform complex felling 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.*
Ensure compliance with risk assessment and industry best practice, including use of correct PPE.	Site set up according to legislation, and industry best practice. Correct PPE selected for the task. Candidate demonstrated awareness of control measures from the risk assessment and complied with these throughout the operation. The candidate placed their combi-can in a suitable location away from any watercourses and sources of ignition.
Field maintenance carried out (e.g. sharpening, tensioning chain)	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.

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.*
Pre-start checks carried out as per operator's handbook and industry best practice.	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 of the chainbrake, on/off switch and checked the chain was oiling and was not creeping.
Felling: Operation of chainsaw and associated tools equipment in line with industry best practice.	**Species to be felled: Larch** Candidate assessed the site before starting work. Candidate made appropriate use of felling lever and timber tongs/ pulp hook throughout the felling operations aiding manual handling and efficiency. Correct use of logging tape also.
Felling and processing techniques taking into account the specific worksite conditions and industry best practice (FISA guidance). Efficiency of working methods (e.g. minimising manual handling, minimising distance covered by measuring/marking product lengths while snedding, etc.)	Demonstrated a range of felling cuts appropriate to the trees being felled. Escape routes were thoroughly cleared before starting. Conventional cut, and split-level cuts were used with appropriate hinge dimensions and consistent felling direction achieved. Chain brake was used appropriately throughout felling and processing. Once felled the trees were snedded correctly leaving the stems clean and at the same time the candidate marked the stem with saw using the tape to measure lengths and rule to check diameter, to the specified cutting spec. Tops were cut off at 7cm, stem then rolled to timber zone. Felling cuts were made as low as possible leaving consistently low stumps.

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.*
Correct configuration of an organised felling system (timber and brash zones) (e.g. bench felling setting up a natural bench using felled trees, timber stacks, strops/slings etc.)	During the felling of the trees the candidate established clear timber and brash zones by setting up an effective bench system. This was achieved by attaching a length of timber from the first tree to a standing stem with a sling and felling the subsequent trees on it.
Processing: Products cut to length according to cutting specification and stacked or presented appropriately for extraction (e.g., appropriately dressing the butt of the first log, removing hinge wood and flares, presenting timber tip/butt first depending on extraction method etc.)	**Cutting spec provided to candidates:** **fencing: length 2.4m, min. top dia. 12cm.** **chip: length 2.1m, min. top dia. 7cm.** The candidate cross-cut the timber at the marks made earlier, accurately to the specified sizes. Timber was then stacked using tongs and pulp hook. Candidate only went up the tree once during processing before moving on the next tree. Timber stacked to ensure that the stack was safe and with consideration to how it was to be extracted. All timber on the stacks was neat with any pegs and flares removed.
Assisted fell: Pulling system set up in accordance with industry best practice, and of sufficient capacity for the tree being felled. Components selected must be compatible (e.g. strops, shackles, winch, rope/cable), fit for purpose and free from damage.	The candidate set up a winch based assisted felling system. Candidate checked that all equipment used was compatible with the safe working load of the winch and fit for purpose and no damage. Correctly selected anchors for a diverted pull set up so operator out of line of fall. The equipment used had a SWL to take the additional load on the anchor into account. Danger zones e.g. within the triangle formed by the divert, were observed throughout. Candidate attached the cable as close to two-thirds height of the tree to be felled as possible, and high enough to achieve sufficient leverage to safely complete the assisted fell. Correct PPE worn and the winch system was set up correctly with the cable set as high as possible in the tree to be felled. The candidate worked fluidly throughout, with little hesitation. Cable from the tree run to another anchor where snatch block set up and then

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.*
	the cable was run back to the winch which was set up on a tree just to the side and behind the tree to be felled. The winch hook was connected to the sling using a shackle. Candidate ensured the routing of the cable was clear of obstructions and any trees to be retained.
Assisted felling techniques taking into account the specific worksite conditions and industry best practice. (FISA guidance)	Tree felled using a safe corner cut releasing the tree and then winch operator directed to winch the tree over. Communication was clear with the winch operator, clearly instructing them when to take up slack from the system, before severing the holding cut and instructing them winch the tree over once holding cut was released. Equipment was dismantled and stowed out of the way and the tree processed to the same standard as the previous trees.
Biosecurity: Tools equipment and PPE thoroughly cleaned down removing debris.	All equipment disinfected and stowed in the vehicle and signage packed away. Site inspected and ensured that it was safe and left tidy.

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

Photographic/video evidence:

- Photo of working area showing brash zone / timber zone and tidiness of work

Below: Clearly established brash and timber zones, result is tidy with timber suitably presented for extraction.

- **Series of photos showing set up of assisted fell: Attachment points (tree, anchor), winch position:**

Below: Pulling system configured correctly with re-direct and winch positioned in safe zone.

Above & below: winch connected to sling using shackle.

Above right: cable route free of obstructions.

Commentary

The candidate demonstrated consideration of **health and safety** and the **environment** when setting up the site and preparing for work, 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.

Candidate demonstrated strong knowledge and skill when **performing complex felling operations**. The candidate set up an effective bench system to fell the trees enabling them to move timber easily and create separate timber and brash zones.

Trees were felled with excellent technical skill using appropriate and accurate cuts. With clear timber and brash zones created, the candidate was able to ensure their work would aid subsequent extraction of the timber. Processing was accurate and efficient (e.g. minimising distance walked up and down the stem by measuring and marking products as the snedded, then cross cutting on the way back down the tree). They were able to **operate machinery** safely e.g. chain brake was used appropriately throughout.

The candidate applied industry best practice related to **performing complex felling operations** during the assisted felling portion of the task, showing an excellent level of skill. For example, the candidate worked 'fluidly with little hesitation' to set up a diverted pull according to industry best practice, making use of suitable anchors in safe positions, the equipment selected was fit for purpose and compatible to the safe working load of the winch. Clear attention to detail was demonstrated throughout (e.g. ensuring the cable was clear of retained trees, winch anchored to tree with sling and shackle ensuring the sling was not damaged by the hook on the winch).

Tree was safely felled using a recognised holding cut (safe corner cut) with very clear communication with the winch operator (e.g. clearly instructing them at each stage - when to take up slack – when to winch the tree over etc).

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.
PO4 Manage woodlands to meet objectives	PO4: Environment and plant health PO4: Planning and silviculture

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
Planting plan.	PO2: Plan for establishment (tree stocks). PO2: Plan for establishment (establishment plans). PO2: Establish trees. PO4: Environment and plant health. PO4: Planning and silviculture.	√		√

Candidate evidence – Planting plan

Planting plan

Number of trees required:

50 ha x 2,500 = 125,000 total trees

45% of 125,000 = 56,250 *Pinus sylvestris* (Scots Pine)

45% of 125,000 = 56,250 *Picea abies (*Norway Spruce)

10% of 125,000 = 12,500 *Quercus petrea* (Sessile Oak)

Selection of native broadleaf species:

Quercus petrea (Sessile Oak)

Quercus petrea is suited to the mildly acid soil on the site and is also more shade tolerant than *Quercus robur (*Pedunculate oak) so may be better suited to growing in a mixture including spruce. Tolerates drier soils than pedunculate oak. Chosen because it has potential to be high value. Timber can be used in construction, fencing, furniture, and the remaining parts of the tree can be used as firewood. Growing in a mixture with the pine and spruce will encourage straight, clean stems helping to maximize value.

Tree supplier:

CG Tree Growers (note, supplier is fictional for purposes of GSEM)

*Picea abies (*Norway Spruce), 20-40cm – £0.49
Pinus sylvestris (Scots Pine), 20-40cm – £0.45
Quercus petrea (Sessile Oak), 40-60cm – £0.71

CG Tree Growers plant health policy states they do not import any trees from outside of Great Britain or buy from nurseries that do. Plant material, soil, and water from the nursery are tested regularly for pests and diseases. They are regularly inspected by Forest Research and APHA (Animal and Plant Health Agency).

CG Tree Growers also has a published biosecurity policy on their website which is reviewed annually, including requiring all visitors to disinfect footwear before entering the site, and staff disinfect footwear and equipment used on external sites before returning to the nursery.

This means we can be confident that plants supplied from this nursery will be free from pests and diseases.

Planting specification:

Stock type: bare root transplants (all species)

Size:
*Picea abies (*Norway Spruce) 20-40cm
Pinus sylvestris (Scots Pine) 20-40cm
Quercus petrea (Sessile Oak) 40-60cm - I have chosen larger planting stock for the oak – this is to help ensure they aren't shaded out by surrounding conifers during the establishment phase.

Spacing:
Picea abies and *Pinus sylvestris*: planted in an intimate mixture, 2m x 2m spacing
Quercus petrea: planted in groups of 9 trees, 2m x 2m spacing (groups evenly distributed throughout the site, each group is 3 trees per row across 3 rows forming a square)

Plant handling: Do not overfill planting bags, handle trees with care and keep roots protected from the wind while planting. Plants stored on site in their bags must be in the shade and there for the minimum time possible before planting. Bags must not be dragged or dropped.

Planting method: Planter creates a notch with planting spade. This should be ion the side of the mound created by the ground preparation. If the soil is difficult to break up or the root system is too big for a single notch, use an L- or T- notch method. Insert roots and ensure tree is upright, lightly pull to spread the roots out and check the correct planting depth, and firm in.

Factors affecting establishment:

Deer grazing is a known threat on the site, they will eat the plants if they aren't protected. The previous attempt to restock the site failed due to deer grazing so this is a priority.

Larix x marschlinsii (Hybrid larch) on the site are infected with *Phytophthora ramorum*. This isn't a direct threat to the species being planted, but additional biosecurity will be necessary when working on the site to minimise the risk of spreading of the disease to other areas.

Weeds and competing vegetation will be a factor during the establishment phase. The site has been cleared for planting, but there will need to be a seasonal program of weed control in the first few years.

It may be necessary to mark the locations of the groups of *Quercus petrea* so that they can be located for monitoring (e.g. to check they are not being excessively overgrown by the conifers), and to make them more visible to brushcutter/sprayer operators, in order to minimise unintentional cutting or spraying of trees.

Tree protection

The primary threat to establishment is damage from Roe deer grazing. The management plan in Figure 1 says the deer population has caused a previous attempt to restock this site to fail. This would indicate that physical protection of the trees is required. Culling would not be effective enough, quickly enough. Due to the size of the site and number of trees, it would be very costly (and impractical) to protect each tree individually (additional labour cost and buying the materials).

Before planting, I will fence the perimeter of the site with 1.8m high netting. This will be significantly more cost effective than buying and installing stakes and tubes for the 12,500 broadleaves, plus beat up costs of replacing conifers which would be eaten by the deer. The cost of fencing the 50ha site would be much lower (around £40,000) and many of the materials (netting, fence posts) could be re-used on subsequent sites once the trees are established and protection is no longer needed.

Cost:

Trees	**Cost/unit**	**Quantity**	**Totals**
Picea abies - Norway Spruce	0.49	56,250	27,562.5
Pinus sylvestris - Scots Pine	0.45	56,250	25,312.5
Quercus petraea - Sessile Oak	0.71	12,500	8,875
		Total	£61,750

Protection materials	Cost/unit	Quantity	Totals
Perimeter fence (approx.)	30,000	1	30,000
		Total	£30,000

Labour	Cost/unit	Quantity	Totals
Plant conifer	0.25	112,500	28,125
Plant broadleaf	0.40	12,500	5,000
Install deer fence (approx.)	10,000	1	10,000
		Total	43,125

	Total	£134,875

Costs per hectare:

Trees: £61,750 / 50 ha = **£1,235 /ha**

Support/protection materials: £30,000 / 50 ha = **£600 /ha**

Planting & protection installation: £43,125 / 50 ha = **£862.50 /ha**

Commentary

The candidate applied strong knowledge, understanding and skills to interpret the brief and carry out relevant research to inform the content of their plan.

The candidate thoroughly interpreted technical information from the brief (including Figure 1) and the task, applying strong technical knowledge and skills to analyse the information and develop an excellent **establishment plan**. For example considering a range of recognised methods of protecting planted trees, and considering all of the information given in the brief and task to select the most effective method. The candidate not only identified that Roe deer was the main threat but noted that grazing had caused failure of the previous restocking and justified their decision that a physical barrier (fence) would be the most appropriate control, based on cost and effectiveness when compared to other options (culling/tree tubes/beat up).

The response contains detailed information showing strong understanding of **environment and plant health** and **establishment plans**, the candidate has provided detailed on information on how the species mixture is to be planted (groups of *Quercus petrea* within an intimate mixture of *Pinus sylvestris* and *Picea abies*) and justified their decisions with sound reasoning – detailed reasoning is given for their selection of broadleaf species covering soil conditions, alternative choices (*Quercus robur*) and potential timber uses.

The native species selected is suitable for the site and soil conditions, with clear evidence of consideration of **planning and silviculture** (e.g. species, site/environmental requirements/characteristics). The candidate showed understanding of **tree stocks** taking into account some relevant factors (e.g. specifying larger plants for the oak to help ensure good initial establishment in competition with the conifers). The species is suitable for the soil conditions given in the task/brief.

The candidate demonstrated excellent knowledge of how to successfully **establish trees**, providing a suitable planting specification for the species and stock types to be planted (e.g. a recognised planting method is described in detail, including adaptations to account for the ground conditions and stock type). Specific information is given on planting pattern and the use of groups of broadleaves within the mixture of conifers is innovative. The candidate has carried this idea through and considered it in their section on ‘factors affecting establishment’ providing useful information on how this should be managed through the establishment phase (e.g. marking the locations of the broadleaved groups to aid weeding and monitoring activities).

The candidate applied the necessary calculations and completed them accurately, and in an efficient logical manner providing a breakdown of costs and overall costs per hectare. The estimated costs given for the fence are realistic, indicating sound research was carried out.

Overall, the candidate produced a detailed and well thought out **establishment plan** which would be effective and efficient to establish the required amount of trees.

They used technical terminology accurately throughout (e.g. consistent use of full scientific names for tree species).

Task 5 – Planting

Evidence contributes to the following:

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

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this 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 5 - planting)

Task	Assessment component number
Task 5) Planting.	8717-406
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO2: Plan for establishment (tree stocks) PO2: Establish trees

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.	**The trees to be planted were medium sized bare root *Quercus robur* transplants, 25x to be planted in row with 2m spacing between trees. Ground conditions in planting area were firm, dry and stony with some short rough grass.** Candidate selected and checked hand tools (suitable spade, planting bag). Appropriate PPE was worn throughout the task (safety boots, gloves).
Check the condition of the plants, check roots, foliage, size, health. Identify and report defects.	The candidate made a thorough inspection of tree condition fully examining the foliage and roots. The candidate reported that some roots were damaged on one tree and there was a dry and insufficient root system on another tree, and that these trees should be rejected.
Prepare planting stock for planting: plants handled with care and loaded into suitable bags/containers for planting	Candidate loaded the correct number (25) of healthy trees into their planting bag. Handled carefully ensuring roots were protected from the elements.
Planting technique, spacing, depth, appropriate to ground conditions and stock type.	Candidate planted the trees using a T-notch technique, and efficiently inserted trees to the correct depth, occasionally doing

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.*
	a quick pull test for firmness. Spacing was accurate for the majority of the row, with no significant variation.
Stakes and guards installed appropriately and securely avoiding any damage to the tree for **two** trees.	Stakes were handled correctly and driven in using a hammer. Both tubes were installed securely over the two trees causing no damage.

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

Photographic/Video evidence:

Photo evidence placeholder:

- Photo of defective plant(s) - photo to show two defective plants. One has significant damage to the roots. The other has dry roots.

Photo evidence placeholder:

- Photo showing close-up of a planted tree without protection installed.

Photo evidence placeholder:

- Photo/s showing spacing achieved – photos showing examples of spacing of trees with tape measure/measuring stick/cane to show accurate spacing.

Photo evidence placeholder:

- Photo showing a planted tree with protection installed. – photo showing planted tree with stake and tube correctly installed.

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 defective trees to the assessor, accurately reporting the defects observed.

The candidate demonstrated excellent skill to **establish trees**. They planted the trees to a high standard, with excellent regard for the health and initial establishment of the trees using an effective planting technique which was suitable for the firm stony ground. Consistently accurate spacing was achieved.

The candidate installed support and protection correctly at the first attempt resulting in conditions for successful establishment of the trees. The planting specification was fully met with efficient working demonstrated throughout.

Task 6 – Boundary maintenance

Evidence contributes to the following:

Performance outcome	Assessment themes
PO5 Maintain woodlands to meet prescribed objectives.	Health and safety. Plan for management/ maintenance. Perform woodland maintenance.

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
Assessor observation.	PO5: Health and safety. PO5: Plan for management/ maintenance. PO5: Perform woodland maintenance.		√	√
Photographs.	PO5: Health and safety. PO5: Perform woodland maintenance.		√	placeholder

Assessor Observation Form (Task 6 – boundary maintenance)

Task	Assessment component number
Task 6) Boundary maintenance.	8717-406
Candidate name	**Candidate number**
The Candidate	CG12345
Centre name	**Assessment themes**
Sample centre	PO5: Health and safety. PO5: Plan for management/ maintenance. PO5: Perform woodland 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

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.*
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.
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 **woodland 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 **planning for 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 **woodland maintenance** task was **performed** to an excellent standard that met the specification.

Task 7 – Vegetation management

Evidence contributes to the following:

Performance outcome	Assessment themes
PO5 Maintain woodlands to meet prescribed objectives.	Health and safety. Plan for management/maintenance. Perform woodland maintenance.

Evidence	Assessment themes	Candidate producing	Assessor producing	Included in this GSEM
Assessor observation.	PO5: Health and safety. PO5: Plan for management / maintenance. PO5: Perform woodland maintenance.		√	√
Photographs.	PO5: Perform woodland maintenance.		√	Not required

Assessor observation (Task 7 – vegetation management)

Task	Assessment component number
Task 7) Vegetation management.	8717-406
Candidate name	**Candidate number**
Sample Candidate	CG12345
Centre name	**Assessment themes**
Sample Centre	PO5: Health and safety. PO5: Plan for management / maintenance. PO5: Perform woodland 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.*
Clearing saw maintenance: Select and prepare tools, equipment and machinery for use including pre-use checks – As a minimum: condition of blade, presence and condition of correct guards, function of power on/off switch, security and fit of harness and attachment system. Remove, sharpen and re-fit the clearing saw blade.	Maintenance carried out in workshop: • Candidate visually checked the condition of the clearing saw blade and the blade guard. Candidate identified that the blade needed sharpening. • Locking pin was inserted and blade was removed safely wearing gloves. • The candidate visually inspected the blade for cracks and damage, also tapping the blade with a spanner and listening to the sound to see if this would indicate any cracks. The candidate visually identified the most damaged tooth and also measured the teeth to identify the shortest. They sharpened the blade using the correct round file and file guide, marking and starting at the shortest tooth and ensuring they filed all teeth to an even length. They checked the offset of the teeth with the file handle and adjusted them. • Blade was refitted to the machine in the correct orientation, secured with the locking nut. • Candidate selected appropriate PPE for the task - gloves, safety boots, helmet with ear defenders and visor, and non-snag outer clothing. • The candidate fitted their harness, attached the machine and adjusted it to achieve good balance. Machine was then placed on the floor, started safely.

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.*
	• The candidate confirmed the blade was not moving at idle and that the on/off switch worked. They inspected all guards were in place and in good condition.
Organisation and setting out the worksite: Placement of appropriate warning signage or other measures to manage public access during the operation e.g. placing of warning signs at perimeter/access point of working area to warn public.	Candidate placed warning signs at each end of the work area next to the track, at a distance of approximately 2x the height of the material being cut.
Selection of suitable area(s) for re-fueling and fuel storage e.g. away from watercourses and sources of ignition or direct sunlight.	Candidate placed their fuel can in an adjacent block of trees away from the track and in the shade.
Interpretation of the job specification provided (identify the area to be cleared, the vegetation to be cleared, and any vegetation to be retained or obstacles to be avoided).	**Job specification:** Assessment site was an area of sparse Birch with dbh of 9-15 cm, with a thick understory of regen with dbh of 2-6 cm. Candidate was instructed to re-space the regeneration to achieve a spacing of approximately 2m between trees, retaining the larger Birch.
Clearing saw operation: Clear unwanted vegetation according to the specification. Use the machine in a safe and effective manner throughout the operation which maintains health and safety and is consistent with current legislation and codes of practice. Use appropriate cutting techniques to avoid	The candidate removed the bade cover, moved away from the fuel can and safely started the machine. They began re-spacing the birch as specified. The candidate consistently used suitable cuts effectively. Directional control when cutting small diameter material was very good, ensuring vegetation fell in the intended direction minimizing handling. The candidate worked systematically, using a consistent felling direction whenever possible so that material lay flat on the ground and didn't pile up across itself. The candidate followed the specification retaining the larger birch, and avoided damaging the retained trees, taking good care when cutting close to other stems.

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.*
damaging not-target species/obstacles	
Ensure the site is left in a safe and tidy condition.	On completion the site was left safe and tidy with all cut vegetation laying neatly on the ground, in rows with nothing hanging up that could present a hazard. The warning signs, fuel can and machine were removed from the site and placed in the correct storage area with the blade guard fitted.

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

Photo/video evidence

- *Assessor pack states a photo is required to show any damage caused to non-target species/obstacles by the candidate during the task – in this instance no photo is required because no damage occurred, as stated in the assessor observation.*

Commentary

The candidate carried out the work to an excellent standard, including **health and safety** and quality, and can enter the industry to begin work in the occupational area.

They interpreted the specification provided by the assessor and followed safe working methods consistently when applying practical skills to an excellent standard to satisfy the requirements of the **woodland maintenance** task.

The candidate demonstrated strong **planning for management/maintenance** - the working area and machine were prepared thoroughly to allow safe working (e.g. placing signs at both approaches to the work area at appropriate distances, placing fueling point away from the track and in the shade).

The candidate worked safely, selecting and appropriately using PPE, maintenance tools and equipment to maintain and prepare the clearing saw to an excellent standard. Pre use checks were completed to a safe standard, and the blade was maintained to a high standard (e.g. Visual and aural check for cracking, measurements taken to identify shortest tooth, equal lengths achieved, offset of teeth checked and adjusted).

The practical vegetation management task was completed safely, to a high standard with no damage caused to the retained trees. The candidate **performed the woodland maintenance** task in line with the specification given, and left the site in a safe and tidy condition, working systematically to ensure arisings lay neatly in rows, consistently making use of appropriate directional cuts with the clearing saw to achieve this.

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