

LEVEL 3 CERTIFICATE OF COMPETENCE IN UTILITY ARBORICULTURE

UA2 – Prune Trees (Ground/Aerial)

Unit 2.3 – (Recertification) Prune and Fell Trees (Ground and aerial)

ASSESSMENT SCHEDULE

NPTC Level 3 Certificate of Competence in Utility Arboriculture

UA2 – Prune Trees (Ground/Aerial)

Unit 2.3 (Recertification) – Prune and Fell Trees (Ground and aerial)

Candidate Information

Introduction

The scheme will be administered by City & Guilds NPTC.

City & Guilds NPTC will:

- Publish
 - Scheme regulations
 - Assessment schedule
 - Assessment material
- Approve centres to co-ordinate and administer the scheme
- Set standards for the training of Verifiers and Assessors
- Recruit, train and deploy Verifiers
- Manage verification
- Issue certificates to successful Candidates

The Certificate of Competence

Certificates of competence will be awarded to Candidates who achieve the required level of competence in the Units to which their Certificate relates.

Instruction

Attendance at a course of instruction is not a pre-requisite for an application for an assessment but potential Candidates are strongly advised to ensure that they are up to the standards that will be expected of them when they are assessed.

NPTC does **not** hold a register of instructors; however instruction will normally be available from recognised training providers and/or centres of further or higher education active in the areas covered by this certificate. Further information on training may be obtained from the centre.

Access to Assessment

Assessment Centres will be responsible for arranging assessment on behalf of a Candidate. Assessment may only be carried out by an Assessor approved by NPTC for that scheme. Under no circumstances can either instructors involved in the preparation of candidates, or the candidates work place supervisors, or anyone else who might have a vested interest in the outcome, carry out the assessment.

The minimum age limit for Candidates taking certificates of competence is 16 years. There is no upper age limit.

Assessment

Assessment is a process by which it is confirmed that the Candidate is competent in the Units within the award to which the assessment relates. It is a process of collecting evidence about his/her capabilities and judging whether that evidence is sufficient to attribute competence.

The candidate must be registered through an NPTC approved Assessment Centre for this qualification prior to assessment.

The result of the assessment will be recorded on the assessment report form.

The schedule of assessment contains the criteria relating to:

- Observation of practical performance
- Assessment of knowledge and understanding

Performance Evaluation

The result of each assessment activity is evaluated against the following criteria:

- 4 = Meets or exceeds the assessment criteria by displaying a level of practical performance and/or underpinning knowledge, with no 'minor' or 'critical' faults. (Competent).
- 3 = Meets the requirements of the assessment criteria for both the practical performance and the underpinning knowledge, with some 'minor' faults but no 'critical' faults. (Competent).
- 2 = Does not fully satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or being deficient in underpinning knowledge leading to the recording of minor faults. (Not yet competent).
- 1 = Does not satisfy the requirements of the assessment criteria, being unable to perform the practical task satisfactorily or safely or being deficient in underpinning knowledge leading to the recording of a critical fault. (Not yet competent).

A list of registered Assessment Centres is available from City & Guilds NPTC. (www.nptc.org.uk)

Verification

Verification is a process of monitoring assessment; it is an essential check to confirm that the assessment procedures are being carried out in the way that NPTC has laid down. The overall aim of verification is to establish a system of quality assurance that is acceptable in terms of both credibility and cost effectiveness.

Approved Assessors will be subject to a regular visit by the verifier at a time when assessments are being undertaken.

A selection of assessment reports completed by the assessor will be evaluated by a City & Guilds NPTC approved verifier.

Compliance with the verification requirements is a pre-requisite for Assessors remaining on City & Guilds NPTC's list of approved assessors.

Complaints and Appeals

City & Guilds NPTC and its Assessment Centres have a formal Complaints and Appeals procedure. In the event of any dissatisfaction with the arrangements and conditions of assessment, the candidate should first contact the Assessment Centre through whom the assessment was arranged and submit the complaint in writing.

For further information on City & Guilds NPTC's Equal Opportunities Policy and Complaints and Appeals Procedures, please refer to www.nptc.org.uk

Learning Outcomes

The candidate will be able to:

- Prune trees from the ground and aerial safely in proximity to a overhead power line

Guidance Notes for Candidates and Assessors

The following should be available:

Pruning from the ground and aerial work

- An overhead line made dead or a simulated line
- A site which incorporates a range of trees with branches that approach and overhang an OHL or simulated OHL so that the trees can be pruned aerially and from the ground using both pruning (lopping) head and a pruning saw attachment.
- A set of insulated rods of at least 4 sections in good condition with at least the following attachments:
- A pruning (lopping) head with appropriate insulator(s) fitted into the pull cord
- A pruning saw recommended blade maximum length 45cm.
- A pruning hook if required

Felling the tree

- An overhead line made dead or a simulated line
- A tree within one tree length of overhead line with an effective diameter at felling height of between 200mm (8") and 380mm (15"), either conifer or broad-leaved
- Rear handled chain saw in good condition complying with AFAG 301 in terms of safety features, and be a model and size suited to the task(s) required, maximum recommended guide bar length: 380mm (15")]
- Sufficient fuel and oil for the assessment, appropriate to saw model
- Appropriate felling aids (e.g. felling lever, wedges, etc)
- An Anchor Rope of adequate length and breaking strain to direct the fall of the tree
- An adequate anchor point for both ends of the rope
- A pruning hook (or lopper head) and insulated rods

NOTE:

A simulated overhead line comprising ropes, spacers, etc may be used, to the following specification:

LV : Vertical arrangement, minimum 3 lines, maximum 22.5 cm.

HV: Horizontal arrangement, minimum 2 lines, maximum 2 m. between lines

Minimum height of lines 5.2 metres from the ground

20 – 30 m. "spans" need to be available per candidate (2 candidates working can then be visible)

Pre-requisites:

Prior to being certificated in this unit, candidates must have achieved **Unit UA1, and UA2 parts 2.1, 2.2 and 2.3** from the Level 3 Certificate of Competence in Utility Arboriculture; and units **CS30, CS31, CS38, CS39 and CS40** from the NPTC Level 2 Certificate of Competence in Chainsaw and Related Operations

Certificate endorsement:

A **Recertification Level 3 Certificate of Competence in Utility Arboriculture -Prune Trees (Aerial)** will be issued to candidates who successfully achieve this UA2 unit 2.3 (recertification)

Note: Under normal circumstances this unit will be assessed by one assessor with electrical and arboricultural knowledge. However, in exceptional circumstances the unit may be assessed by two assessors; one with arboricultural knowledge; the other with electrical knowledge.

Safe Practice

1. Assessors must hold a current 'First Aid at Work' Certificate.
2. It is strongly recommended that Candidates hold at least a recent, recognised 'Emergency First Aid' Training Certificate. This may be a requirement of some Electricity Companies.
3. Any overhead line(s) will be made dead (but will be treated as live).
4. Correct procedures following the relevant guidelines must be implemented to ensure that the line is dead.
5. All chain saws used in the assessments must comply with Arboriculture and Forestry Advisory Group (AFAG) Safety Guide 301 in terms of safety features, and be a model and size suited to the task(s) required.
6. Recommended guide bar lengths should be observed, although variations may be accepted at the discretion of the Assessor where this is appropriate to the task.
7. Candidates should be familiar with the saw that they are going to use.
8. A spare working chainsaw must be available.
9. The Assessor must ensure a Risk Assessment has been carried out, and sufficient control measures implemented. In particular, the location of the site and weather conditions should be assessed, details of access, etc, which may be required by emergency services must be noted, as well as the nearest Accident and Emergency Hospital Unit. The means of contacting the emergency services must be established.
10. Manual handling techniques must comply with current legislation.
11. All Personal Protective Equipment (PPE) used in the assessments must comply with Arboriculture and Forestry Advisory Group (AFAG) Safety Guide 301, 401, 801, Health and Safety Executive publications and current legal requirements in terms of specification and use.
12. The current Regulations for transport, handling and storage of fuel and oils must be complied with.
13. Provision must be made to avoid the risk of Environmental Pollution.
14. A First Aid Kit complying with current Regulations, of the appropriate size for the number of persons on site, must be available on site
15. Warning signs must be erected as appropriate to Risk Assessment
16. Current Industry Best Practice Guidelines (e.g. AFAG Safety Guides 301,401,403) for each task carried out need to be followed.
17. All insulated rods used in the assessment must comply with the safety requirements of the Network Operator.
18. Any necessary permissions must have been granted, and notifications made as appropriate: (e.g. Network Operator, Local Planning Authority, Forestry Commission, Highways Authority, Private owners, Statutory undertakers, Police, etc.).
19. Long hair to be tied back and jewellery removed
20. The assessments are carried out in accordance with safety guidelines in the Electricity Act 1989 (Schedule 4 Para. 9), Electricity at Work Regulations, HSE Guidance Notes GS6 & HS (G) 47, HS (G) 85 Electricity at Work Safe Working Practices, Electricity Supply Industry (ESI) Model Distribution Safety Rules, ESI Engineering Recommendation G55/2, BS EN 50110-1 and other relevant Safety Guides and current legislation e.g. the Provision and Use of Work Equipment Regulations (PUWER) 1998,
21. If ladders are used then they must meet the local Network Operators standards.
22. It is the responsibility of the Assessment Centre, Assessor and the Candidate to ensure that the additional requirements and provisions are met as relevant to the units
23. Additional information may be sought from the relevant operator manuals or any other appropriate training or safety publication. **NB.** This reference would only be made to establish safe site practices for facilitation of the assessment. It **would not** include candidates' reference to the NPTC schedule of assessment (or G55/2) etc for the duration of the assessment activity .i.e. the candidate must provide responses without reference to any source material.

UA2.3 (Recertification) Prune and Fell Trees (Ground and aerial)	
Assessment Activity	Assessment Criteria
1. Assess the site-specific hazards that may need to be controlled to reduce the risks before and during a job	<ul style="list-style-type: none"> - Identification of location of emergency procedure and site plans - Confirmation of Ordinance Survey Grid Reference - Location other Utilities overhead plant – BT, Electricity, Gas, Water - Awareness of need for traffic signs / control (holder of "Chapter 8" Competency (Safety at Roadwork's and Street works COP) on site) - Awareness of other services apart from the overhead line - Control of environmental pollution - Disposal of arisings: - Awareness of responsibilities towards other workers, public and self - Overhead line inspected for defects - Branches to be pruned identified - Overhead line inspected for defects (broken conductor strands – if conductors are damaged get advice from DNO) - Plan of work agreed with co-worker(s)
2. Assess the <u>additional</u> site-specific electrical hazards that may need to be controlled to reduce the risks before and during a job	<ul style="list-style-type: none"> - Awareness of danger from equipment coming into contact with the live line (winch vehicles and cables chippers, loaders, tipping trailers etc.) - Timber removal ("goal-posts" and warning barriers in line with GS6 if machinery and vehicles pass under or along adjacent to overhead lines)
3. Demonstrate knowledge of changes that may have occurred to justify amending the risk assessment or re-categorising trees	<ul style="list-style-type: none"> - Additional tree growth - Changed land conditions - Weather conditions on the day- wet, wind sun etc - Access arrangements altered - Livestock moved into work area - Changes in conductor height
4. Identify Category A,B,C and D trees on site	<p>Category A:</p> <ul style="list-style-type: none"> - Trees within the Vicinity Zone including the Live Zone at or above the level of Conductors or equipment <p>Category B:</p> <ul style="list-style-type: none"> - Trees Outside but capable of breaching the Vicinity Zone including the Live Zone adjacent to conductors or equipment. <p>Category C:</p> <ul style="list-style-type: none"> - Trees within the Vicinity Zone including the Live Zone that are beneath the conductors or equipment. <p>Category D:</p> <ul style="list-style-type: none"> - Trees outside the Vicinity Zone with no potential of breaching the Vicinity Zone
5. Identify when a dedicated look-out groundsman is required	<ul style="list-style-type: none"> - Reference to criteria at activity 6 below
6. Demonstrate knowledge of the Electrical Method of Work required prior to and during the pruning, felling and removing of trees (Ground based)	

UA2.3 (Recertification) Prune and Fell Trees (Ground and aerial)	
Assessment Activity	Assessment Criteria
Procedures for category A trees:	<p>Procedures for category A trees:</p> <ul style="list-style-type: none"> - Where the voltage is greater than 33kV then the works will be carried out dead. The only exception to this will be where no branches breach the Live Zone and there is further supervision and a method statement approved by the Network Operator that ensures there is no breach of the Live Zone. - With the line live the method of work should be established by incorporating the following control measures: Branches can be reduced by using Approved Insulated Tools. Approved Insulated Tools may only be allowed to be used in the Live Zone where a procedure approved by the Network Operator is in place. - Trees with branches in the Live Zone must not be climbed. - Trees with branches in the Vicinity Zone but not in the Live Zone should only be climbed where a procedure approved by the Network Operator is in place. - If branches protrude through the Vicinity Zone and up above the height of the Vicinity Zone and overhang the extent of the Live Zone then the works will be carried out dead. - Where Approved Insulated Tools or any cut materials have the potential to cause a phase to phase or phase to earth flash over, then the length of cut section must be determined by risk assessment and recorded: particularly taking in to account distances between phases - A dedicated lookout groundsman capable of stopping work will be required to ensure that the required control measures are being adhered to - Works must be planned such that contact with electrical equipment is avoided. The saw head should not be used in the Live Zone or on thin branches less than 25mm diameter that protrude into the Live Zone ; this prevents excessive movement and unintentional contact of branches with conductors.
Procedure for category B trees:	<p>Procedure for category B trees:</p> <ul style="list-style-type: none"> - With the line live the method of work should be established by incorporating the following control measures: - In the particular circumstance where there is extensive overhang (which cannot be removed using an *approved method) over the Live Zone then works shall be carried out dead. *The only exception to this will be where there is further supervision and a method statement approved by the Network Operator. This must incorporate further controls that ensure no breach of the Live Zone and may incorporate the use of hand held sections, lowering equipment or rope assisted felling. Full account of the weather conditions must be taken. Control measures should, where necessary, include preparatory work to remove branches in a logical manner to avoid the risk of small branches cut higher up in the crown outside the Vicinity Zone bouncing or cart-wheeling onto the line. - If branches have the potential to breach the Vicinity Zone then Approved Insulated Tools must be used. If branches have the potential to breach the Live Zone then only small sections should be removed to avoid a phase to phase contact or damage to the network. The maximum length of cut section should be recorded on the risk assessment. - These trees can be climbed and dismantled with suitable control measures, it must be ensured that in the event of a fall or swing there is no possibility of a climber breaching the Vicinity Zone. - A dedicated groundsman capable of stopping work must be used to maintain clearances if a climber or MEWP is above the level of conductors. - Straight fell trees away with appropriate control measures (such as the use of two ropes) to ensure no breach of the Vicinity Zone. The suitability of any such procedures must be approved by the Network Operator.

UA2.3 (Recertification) Prune and Fell Trees (Ground and aerial)	
Assessment Activity	Assessment Criteria
<p>Procedure for category C trees:</p> <p>Procedure for category D trees:</p>	<p>Procedure for category C trees:</p> <ul style="list-style-type: none"> - With the line live the method of work should be established by incorporating the following control measures: - Remove branches in the Live Zone with Approved Insulated Tools - If the trees are below the level of the Live Zone, with no possibility of breaching the Live Zone then they may be felled or pruned with non-insulated tools such as a chainsaw. - If the tree to be felled is below the level of the Live Zone with a possibility of breaching the Live Zone then remove the branches with Approved Insulated Tools prior to felling. - If the trees are below the level of the Live Zone then they may be climbed ensuring that no part of the climber's body, tools or equipment can breach the Vicinity Zone and that branches are not caused to breach the Live Zone. A dedicated lookout groundsmen capable of stopping work should be used in this instance. <p>Procedure for category D trees:</p> <ul style="list-style-type: none"> - With the line live the method of work should be established by incorporating the following control measures: - Use non-insulated tools and avoid any breach of the Vicinity Zone by operatives, tools or equipment - Wherever possible trees should be felled away from conductors. Trees must be felled into a cleared area to avoid the risk of a 'domino' effect with other trees.
7. Identify condition of the Over Head Line	<ul style="list-style-type: none"> - Overhead line inspected for defects - Broken or damaged conductors - Irregular spacing of conductors - Ground clearance - Damaged or rotten poles - Condition of stays
8. Assemble, inspect insulated rods Demonstrate knowledge of the minimum number rods required for working up to 11kV and up to 33 kV	<ul style="list-style-type: none"> - Insulated rods: - Checked, inspected and assembled - Approved by DNO for work to be carried out - Joints fit securely - Voltage rating, unique identification numbers and date of inspection checked - (if no rating marked reference to be made to manufacturers schedule) - Understand and ensure the effectiveness of insulated inserts is maintained - Number of rods appropriate for the task - 3 rods (LV and 11kV) - 4 rods (33kV)
Demonstrate knowledge of factors to consider for the use care and maintenance of insulated rods	<ul style="list-style-type: none"> - Insulated rods are only approved for voltages up to 33KV - Dirty rods cleaned externally and internally with warm soapy water - Damaged or defective rods to be withdrawn from service labelled as defective or scrapped - Only carry out repairs to minor scratches using polish recommended by manufacturer to – ensures that water beads and runs off - Rods to be examined and tested as per manufacturers recommendations at regular intervals by a suitably authorised person - Results to be recorded and tools marked with most recent test date or next test date - Tools to be stored in a dry, clean environment and in a position which will prevent scratching or damage
9. Demonstrate knowledge of the reason various pruning tools are used.	<ul style="list-style-type: none"> - Pruning (lopping) head is used on twigs and branches less than about an inch in diameter - Pruning saw is used on branches over about an inch in diameter - Control hook is used by an assistant to steady, lift or pull branches being pruned, or is used to place a pull-rope over a branch - Ensure saw head is not used in the Live Zone.

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Assessment Activity	Assessment Criteria
10. Select and wear Personal Protective Equipment (PPE, Safety clothing)	<ul style="list-style-type: none"> - Safety boots - Safety helmet - Eye protection - Gloves - Non-snag outer clothing - Personal First Aid Kit - Whistle - Hi-viz jacket (adjacent to roads or other work operations)
11. Use pruning (lopping) head with insulated rods in close proximity to electrical apparatus	<ul style="list-style-type: none"> - Insulated rods assembled - Insulated insert positioned in the pulling cord in relation to the OHL - Plan of work agreed with a co-worker to pull cord if required - Pruning head positioned to avoid risk of conductor clashing or flash over - Ensure that there is good positive communication during pruning operations - Co-worker instructed during pruning - Twigs and branches cut at pre-determined lengths to avoid the risk of a flash over - Control hook can be used with a second set of insulated rods by an assistant to steady, lift or pull branches being pruned. They can also be used to place a pull-rope over a branch - Longer lengths of branches can be cut provided that they will not either hang up on the line or cause a flashover - Selected branches pruned to give the specified clearance from the overhead line - Awareness of requirement to undertake risk assessment to ensure no damage to overhead line where branches go through a line - Permission for the removal of any branches hung up on the line must be obtained from the NO - Awareness of need to clean rods to ensure all contamination is removed if laid on ground during operations - Rods inspected for damage on completion of operation
12. Use pruning saw with insulated rods in relation to electrical apparatus	<ul style="list-style-type: none"> - Insulated rods assembled - Plan of work agreed with a co-worker if pruning hook or pull rope is used - Co-worker instructed to use insulated rods to attach pulling ropes or use pruning hook to ensure the branch falls outside the vicinity zone, if appropriate - Saw position near to the base of the branch to prevent bouncing / whipping - Side/Under cut made - Release cut made - Final pruning cut made - Branches pruned to intersections for directional pruning - Branches cut in sections to avoid risk of flash over, damage to conductors or apparatus or clashing of conductors - Pruning saw positioned to avoid risk of conductor clashing or flash over - Selected branches pruned to give the specified clearance from the overhead line - Cut sections prevented from being caught on the overhead line. - Ensure the saw head is not used in the Live Zone - Ensure the saw head is not used on branches less than 25mm into the Live Zone.
13. Demonstrate knowledge of: The reasons for 1-2-3 sequence of cuts when undertaking pruning operations The reasons for target pruning The procedures to clean, transport and store pruning tools	<ul style="list-style-type: none"> - To control the cut section - To prevent tearing or ripping of the bark - To ensure the final (target) pruning cut can be carried out precisely - Preserves the branch bark collar and trees' defences against decay - Stubs and flush cuts allow decay to enter - Stubs and flush cuts encourage sprout growth - Stubs and flush cuts leave tree looking unsightly. - Clean off sap, resin etc. - Dry and apply suitable rust preventative / lubricant - Cover tool heads to transport or store - Store in a dry, safe place

UA2.3 (Recertification) Prune and Fell Trees (Ground and aerial)	
Assessment Activity	Assessment Criteria
14. Use approved insulated rods to attach pulling rope(s) to a tree to be felled and prepare for felling	<ul style="list-style-type: none"> - Signals/commands agreed with party - Pruning hook used (or lopper head etc) to place rope over a suitable branch - Position and secure rope in tree to ensure no contact with conductor - An appropriate anchor point chosen (either at least 2 tree lengths away or 'offset') - Rope attached firmly to ground based anchor point e.g. using a suitable hitch - Rope tensioned (e.g. with a butterfly knot or hand winch) - Offset pulley used if e.g. pulling directly down a slope - Additional ropes to be used if necessary
15. Carry out an assisted fell of a tree adjacent to an overhead line Rope attached to anchor point through 'fail safe' braking system to allow assisted felling with no danger of tree falling back onto conductors	<ul style="list-style-type: none"> - Signals/commands agreed with party - Pruning hook used (or Pruning head etc) to place rope around the stem - Position and secure rope in tree to ensure no contact with conductor - An appropriate anchor point chosen (either at least 2 tree lengths away or 'offset') - Rope attached firmly to anchor point - Assistant instructed to apply pressure to rope as appropriate - Awareness of risk if tree/debris fall onto conductors - Awareness of risk if adjacent trees fall onto conductors - Awareness of risk if tree which becomes hung up rolling into conductors - Tree felled where agreed with assessor - Escape route entered as tree begins to fall - Tree stabilised and site made safe - Rope removed - Awareness of risk of over tensioning ropes.
16. Demonstrate knowledge of alternative techniques used to deal with trees of varying size and condition	<ul style="list-style-type: none"> - Small trees leaning away or weighted away from the line can be felled with e.g. reducing V cut - Larger trees, when appropriate, can be felled with the aid of a winch, with the line dead - Use wedges when necessary to prevent a tree "sitting back" even when a pulling device used - If the tree is unsuitable for felling away from the line use an appropriate dismantling technique with the line dead - Assess wind load etc and then judge if the task can be completed safely - Do not fell if an electrical storm is likely
17. Carry out a pre-climb inspection of the tree	<ul style="list-style-type: none"> - The pre-climb inspection should look for: - Evidence of cavities, decay or decay fungi - Deadwood and broken branches - Dead or flaking bark - V shaped unions - Cracks - Nesting insects - Timber characteristics of the tree species should be commented on - The presence of power lines or telephone wires - Targets and obstacles underneath the tree
18. Climb the tree to work position	<ul style="list-style-type: none"> - Signals agreed (hand/radio) - Tree climbed on opposite side to conductors - Ropes routed away from the conductors - Work position established with secondary anchor point - Ensure climber or any equipment does not infringe the vicinity zone - Ensure climber or any equipment cannot infringe vicinity zone in the event of a fall - Ensure that the climber does not work directly above any conductor - Ensure a dedicated look-out groundsmen capable of stopping work if the climber works directly above any conductor.

UA2.3 (Recertification) Prune and Fell Trees (Ground and aerial)	
Assessment Activity	Assessment Criteria
19. Carry out directional and target pruning work	<ul style="list-style-type: none"> - Ensure clear and concise communication - Safe/correct pruning methods applied - Sections cut small enough for ease of handling - Cut sections cast away from the conductors to prevent breach of Vicinity Zone - Stated clearance achieved from the line - All pruning operations carried out to prevent the climber and un-insulated equipment breaching the Vicinity Zone. - Prune to encourage any new growth to grow away from the line - Ensure ratio of diameters of main stem to remaining branch not greater than 3:1 - Under cut, released cut, final pruning cut - Sections cut small enough to prevent breach of vicinity zone - Pieces cast away from the conductors - Cut section controlled to prevent tearing or ripping of the bark - Branch bark collar preserved - If appropriate mirror the branch bark ridge
20. Descend from the tree	<ul style="list-style-type: none"> - Tree descended on opposite side to conductors - Ropes removed ensuring no breach of Vicinity Zone