

Street Works Initial Qualification Specification

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- Highways Authorities and Utilities Committee (HAUC) UK.

1 Why has this Qualification been Developed?

1.1 Requirements for Operatives and Supervisors

The New Roads and Street Works Act 1991 (NRSWA) requires work involving the installation, renewal, maintenance and inspection of underground apparatus in the highway, to be under the control of competent persons. The Act requires that there is a qualified operative on-site at all times while street works are in progress. The qualification held must be appropriate for the work being carried out. The Act does not require all the relevant qualifications to be held by a single operative – the main requirement is that there is always at least one operative on-site whose qualifications match the activities being undertaken.

The Act also requires that the execution of street works is monitored by a person having a prescribed qualification that covers the work being undertaken as a supervisor. The supervisor is not required to be on-site at all times. A qualified supervisor might therefore supervise a number of street works sites.

To become a qualified operative or supervisor, a Learner must gain one or more of the available certificates within the appropriate qualification to suit the work that they do. The certificates (also referred to as units within this document) are issued by one of the four street works awarding organisations, including Lantra. The certificates must be registered with the Street Works Qualifications Register (SWQR), which is administered by the Scottish Qualifications Authority (SQA). For a person to continue acting as a qualified operative or supervisor, this registration must remain current.

New entrants need to attend an approved Provider to undertake initial theoretical knowledge and practical skills assessments in their chosen subjects. Training can be provided before assessment, but this is not compulsory. Once the Learner passes the relevant initial assessment(s), the Provider will notify Lantra and SWQR. Lantra will also contact SWQR and confirm that they have awarded the certificate and the date it was issued to the Learner. SWQR will then record the certificate on the street works register and issue the Learner with a street works card. Each certificate on the card will last for five years from the certification date, i.e. the date Lantra issued the certificate.

When the certificate approaches expiry or expires, operatives and supervisors are required to renew their qualification by undergoing reassessment or undertaking the initial assessment again. Initial assessment involves an assessment of knowledge and the practical application of that knowledge; reassessment is a theory only assessment.

The Learner will be able to renew any certificate at any point in its lifetime. Training is not compulsory when renewing, but assessment Providers can provide it if required.

A certificate is not valid once it has expired, but it can be renewed any time up to five years after the expiry date. This may be useful if the Learner stops doing street works for a while and then later decides to return to the industry.

In Wales and Northern Ireland, certificates can be renewed simply by re-registering with SWQR.

2 Who is the Qualification for?

This qualification is for those employed in carrying out and monitoring work on the highway and is available for both operators and supervisors. It covers a range of skills for those who need to safeguard their work by signing, lighting and guarding, as well as carrying out excavation and reinstatement work.

This qualification provides routes to registration on the SWQR required under the New Roads and Street Works Act 1991. Re-registration is required every five years.

This qualification is recognised by industry and regularly reviewed by the Highways Authorities and Utilities Committee (HAUC UK).

This qualification is not reviewed, recognised or monitored by any UK regulatory body (Ofqual, Scottish Qualifications Authority, Qualifications Wales etc).

The qualification and associated units are available for Learners aged 16+.

2.1 Prerequisites

The street works initial units are available to anyone who can achieve the required standard. Provider staff should understand the demands of the theoretical knowledge and practical skills assessments and ensure Learners are undertaking the correct unit(s) based on their individual capabilities and work activities.

There are no formal requirements for entry to this qualification and associated units.

This qualification has been developed to promote equal opportunities by eliminating any avoidable barriers that have the potential to restrict access or progression.

3 What does this Qualification Cover?

Learners undertaking this qualification will be able to demonstrate their skills and knowledge in carrying out and/or monitoring safe excavation and reinstatement work in the highway.

The qualification aims to assess the Learner's practical skills, knowledge and understanding of:

- Location and avoidance of underground apparatus
- Signing, lighting and guarding
- Excavation in the highway
- Reinstatement and compaction of backfill materials
- Reinstatement of sub-base and base in non-bituminous materials
- Reinstatement in cold lay bituminous materials
- Reinstatement in hot lay bituminous materials
- Reinstatement of concrete slabs
- Reinstatement of modular surfaces, concrete footways.

4 Qualification overview

		Where to look for further details
Qualification title	Street Works Initial	
Qualification number	Not applicable	
Qualification aim	Learners undertaking this qualification will be able to demonstrate their skills and knowledge in carrying out and/or monitoring safe excavation and reinstatement work in the highway.	
Qualification purpose	This qualification is for those employed in carrying out and/or monitoring works on the highway who require registration on the SWQR.	
Qualification start date	08 June 2018	
Unit numbers and titles	<ul style="list-style-type: none"> • 001 – Location and avoidance of underground apparatus • 002 – Signing, lighting and guarding • 003 – Excavation in the highway • 004 – Reinstatement and compaction of backfill materials • 005 – Reinstatement of sub-base and base in non-bituminous materials • 006 – Reinstatement in cold lay bituminous materials • 007 – Reinstatement in hot lay bituminous materials • 008 – Reinstatement of concrete slabs • 009 – Reinstatement of modular surfaces, concrete footways • 010 – Monitoring signing, lighting and guarding • 011 – Monitoring excavation in the highway • 012 – Monitoring reinstatement and compaction of backfill materials • 013 – Monitoring reinstatement of sub-base and base in non-bituminous materials • 014 – Monitoring reinstatement in bituminous materials • 015 – Monitoring reinstatement of concrete slabs • 016 – Monitoring reinstatement of modular surfaces, concrete footways. 	Page 8-108
Qualification structure	This qualification comprises of 16 assessed units of competence for operatives and supervisors. Nine units are applicable to operatives and eight to supervisors. One of these units (001) applies to both groups.	

	<p>There are three key units (001, 002 and 010) which must be undertaken for operatives and supervisors wishing to carry out and/or monitor excavation and reinstatement activities.</p> <p>Depending on the Learner's role and work-based requirements, they are required to combine the appropriate key units with the relevant excavation and reinstatement units to meet their needs.</p>				
Age group	Pre-16	16–18	18+	19+	
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Entry requirements	<p>Learners must be able to read and interpret information provided in English. It is recommended that Learners have a basic knowledge of first aid procedures.</p>				
Prerequisites	<p>There are no formal requirements for entry to this qualification.</p>				
Recognition of prior learning (RPL)	<p>RPL is not a recognised method of assessment for the street works units and qualification. However, Learners may provide supplementary evidence from the workplace to demonstrate their competence.</p>				
Assessment methods	<ul style="list-style-type: none"> • Practical observation of assessment activities • Multiple-choice questioning • Verbal questioning. 				
Assessment model	<p>This qualification is internally assessed with external verification. This means that Providers will appoint Assessors and that an internal quality assurer (IQA) is required to provide internal quality assurance prior to external quality assurer (EQA) sign off.</p>				
Grading	<p>Pass/Fail</p>				
Is there a skills card available?	<p>Yes</p>				<p>Guidance Handbook for Providers</p>
Fees	<p>Registration and certification fees can be found in the Product Directory. Prices are subject to review on an annual basis so please contact the sales team if you do not have an up to date copy (sales@lantra.co.uk).</p>				<p>Product Directory; sales team</p>
How do I register Learners?	<p>Via Quartzweb ordering.lantra.co.uk/Login.aspx</p>				<p>Quartzweb User Guide</p>

5 Content of Qualification

There are sixteen assessed units of competence for operatives and supervisors. Nine units are applicable to operatives and eight to supervisors. One of these units (001) applies to both groups. The units are listed below, with units for operatives marked 'O' and supervisors' units marked 'S'.

Unit	Unit title	O/S	SWQR Ref
001	Location and avoidance of underground apparatus.	O/S	LA
002	Signing, lighting and guarding.	O	O1
003	Excavation in the highway.	O	O2
004	Reinstatement and compaction of backfill materials.	O	O3
005	Reinstatement of sub-base and base in non-bituminous materials.	O	O4
006	Reinstatement in cold lay bituminous materials.	O	O5
007	Reinstatement in hot lay bituminous materials.	O	O6
008	Reinstatement of concrete slabs.	O	O7
009	Reinstatement of modular surfaces, concrete footways.	O	O8
010	Monitoring signing, lighting and guarding.	S	S1
011	Monitoring excavation in the highway.	S	S2
012	Monitoring reinstatement and compaction of backfill materials.	S	S3
013	Monitoring reinstatement of sub-base and base in non-bituminous materials.	S	S4
014	Monitoring reinstatement in bituminous materials.	S	S5
015	Monitoring reinstatement of concrete slabs.	S	S6
016	Monitoring reinstatement of modular surfaces, concrete footways.	S	S7

There are three key units (001, 002 and 010) which must be undertaken for operatives and supervisors wishing to carry out and/or monitor excavation and reinstatement activities. Depending on the Learner's role and work-based requirements, they are required to combine the appropriate key units with the relevant excavation and reinstatement units to meet their needs. There is no requirement to hold any combination of non-key units.

Operatives need the following units to be qualified to excavate or reinstate:

- 001 – Assessed location and avoidance of underground apparatus
- 002 – Assessed signing, lighting and guarding
- The relevant unit(s), from 003 to 009.

Supervisors need the following units to be qualified to monitor excavation or reinstatement:

- 001 – Assessed location and avoidance of underground apparatus
- 010 – Assessed monitoring signing, lighting and guarding
- The relevant unit(s), from 011 to 016.

Unit title	Location and avoidance of underground apparatus
Unit reference number	001
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to successfully locate and avoid underground utilities apparatus and highways services. The Learner will be able to interpret plans and confirm that they correspond with the work site. The Learner will be able to identify different underground utilities apparatus and highways services that are encountered during excavation and understand the hazards, risks and consequences of damaging them. The Learner must be able to select, prepare and use pipe and cable location equipment to identify and mark the location of underground utilities apparatus and highways services.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Interpret information and plans showing the location of underground apparatus	1.1 Inspect the site to confirm that it corresponds with the information and plans provided.
	1.2 Identify visual indications of services being present on the site location.
	1.3 Interpret plans to identify utility and highway services.
	1.4. Confirm that the information recorded on plans is accurate and current for the site.
2. Understand how to interpret information and plans showing the location of underground apparatus	2.1. Define the criteria for checking that plans are current.
	2.2. Identify the types of symbols and legends that are used on plans.
	2.3. Identify how different types of services are shown on plans.
	2.4. Define the importance of marking the site clearly prior to excavation.
3. Identify utilities apparatus and highways services encountered during excavation	3.1. Identify the underground utilities apparatus and highways services.
	3.2. Identify damage to underground utilities apparatus and highway services.

4. Understand how to identify utilities apparatus and highways services encountered during excavation	4.1. Identify the different types of underground utilities apparatus and highways services.
	4.2. Identify the distinguishing characteristics of underground utilities apparatus and highways services.
5. Identify the hazards and risks associated with underground utilities apparatus and highways services	5.1. Conduct a site specific risk assessment to identify the hazards, risks and suitable control measures.
	5.2. Ensure that control measures and contingency plans are in place to reduce the likelihood and severity of consequences resulting from the damage of underground utilities apparatus and highways services.
6. Understand the hazards and risks associated with underground utilities apparatus and highways services	6.1. Define the information recorded within a site specific risk assessment in relation to the location and avoidance of underground utilities apparatus and highways services.
	6.2. Identify damage to underground utilities apparatus and highways services.
	6.3. State the potential consequences of damaging underground utilities apparatus and highways services.
	6.4. Define the control measures used to reduce the likelihood and severity of consequences resulting from the damage of underground utilities apparatus and highways services.
	6.5. State the purpose of contingency plans in relation to damaged utilities apparatus and highways services.
7. Use pipe and cable location equipment	7.1. Select equipment for the pipe and cable location activity.
	7.2. Ensure that the equipment to be used is fit for purpose.
	7.3. Prepare equipment for use.

	7.4. Conduct the search using the appropriate techniques to locate underground utilities apparatus and highways services.
	7.5. Interpret the results of search procedures accurately.
	7.6. Mark the site clearly showing the location of underground utilities apparatus and highways services.
	7.7. Compare the results of searches undertaken with the information on the site plans.
8. Understand how to use pipe and cable location equipment	8.1. Define the operational limitations of different pipe and cable location equipment.
	8.2. State how to select equipment that is fit for purpose.
	8.3. Define the procedure for notifying the relevant authority of discrepancies between search results and site plans.
	8.4. State the procedure to follow where underground utilities apparatus and highways services cannot be found using pipe and cable location equipment.
9. Follow safe working practices	9.1. Identify the relevant health and safety regulations, standards and other legislation that must be applied in relation to: a) working practices within the construction environment b) working practices specific to any practical task that they are required to carry out.
	9.2. Follow current relevant health and safety regulations, standards and other legislation relating to: a) working practices within the construction environment b) working practices specific to any practical task that they are required to carry out.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Utilities apparatus** includes:

- a) Plastic and metallic gas mains
- b) Plastic and metallic water mains
- c) Sewers and drains
- d) Low- and high-voltage electricity cables
- e) Telecommunications and television cables
- f) Fibre optic cables.

2. **Highways services** includes:

- a) Highway drainage
- b) Culverts
- c) Land drains
- d) Street lighting and traffic signal equipment
- e) Highways/roads with special engineering controls.

3. **The symbols and legends** must cover a minimum of three of the following types:

- a) Water
- b) Gas
- c) Sewers
- d) Telecommunications
- e) Electricity.

4. **Safe working practices** may include:

- a) Safe use of tools and equipment
- b) Use of PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor/goggles, dust mask
- c) Use of risk assessment methods to identify and control hazards on-site
- d) Precautions to minimise danger or inconvenience to highway users
- e) Precautions to minimise danger or inconvenience to site personnel
- f) Precautions to minimise damage to equipment or apparatus.

5. **Regulations, standards and other legislation** include:

- a) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
- b) HSE (2006). *Health and safety in construction HSG150*. Third edition.
- c) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.

6. Potential **consequences resulting from the damage** to utilities apparatus and highways services include:
 - a) Health and safety hazards including:
 - i. Personal injury or death
 - ii. Dangerous situations.
 - b) Disruption of service
 - c) Disruption of traffic
 - d) Damage to third part assets (highway and private property).
7. **Equipment** used when locating pipes and cables includes:
 - a) Proprietary pipe and cable location equipment
 - b) Suitable marking equipment
 - c) Personal protective equipment (PPE).

Unit title	Signing, lighting and guarding
Unit reference number	002
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to successfully select, install, maintain and remove signing, lighting and guarding on a work site. The Learner will be able to survey the location and traffic conditions to ensure that suitable provision is selected and installed for the work site requirements. The Learner must be able to select, install and maintain the appropriate equipment, including portable traffic signals and stop/go boards, to protect pedestrians, site personnel, vehicular traffic and those with special needs including cyclists and horse riders.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Survey the work site	1.1. Conduct a site specific risk assessment to identify the hazards, risks and suitable control.
	1.2. Identify the appropriate provision for the requirements of the site location and its users.
	1.3. Identify provision for the safe passage of pedestrians.
	1.4. Identify ways to minimise disruption to and ensure the safety of vehicular traffic.
	1.5. Identify provision for any special needs.
	1.6. Produce a plan and equipment list that that makes provision for the location, vehicles and plant within the confines of the working space.
2. Understand how to survey the work site	2.1. State the purpose of work site surveys and site specific risk assessments in relation to the installation and removal of signing, lighting and guarding.
	2.2. State the potential requirements of the location and its users when selecting and installing signing, lighting and guarding.

	<p>2.3. Define the factors that influence provision for:</p> <ul style="list-style-type: none"> a) The safe passage of pedestrians b) Potential requirements of people with special needs c) Vehicles and plant within the working area d) Work near tramways and railway crossings. <p>2.4. State how to minimise disruption to and ensure the safety of vehicular traffic.</p> <p>2.5. Identify the circumstances in which mobile and short duration works would be applicable.</p>
<p>3. Protect pedestrians, vehicular traffic and site personnel</p>	<p>3.1. Select and use personal protective equipment appropriate for the task.</p> <p>3.2. Create footway, traffic lanes and safety zones to provide for:</p> <ul style="list-style-type: none"> a) The requirements of the site location b) The safe passage of pedestrians c) Minimising disruption to and ensuring safety of vehicular traffic d) Identified special needs. <p>3.3. Control the movement of pedestrians, vehicles and plant within the confines of the working space.</p> <p>3.4. Select equipment that meets the requirements of the site location and any special needs.</p> <p>3.5. Check that the equipment to be used is fit for purpose.</p> <p>3.6. Position and remove equipment according to a specified sequence.</p>
<p>4. Understand how to protect pedestrians, vehicular traffic and site personnel</p>	<p>4.1. Define the personal protective equipment required for signing, lighting and guarding activities.</p> <p>4.2. State how to control the movement of pedestrians, vehicles and plant within the confines of the working area.</p>

	4.3. Define the distances and dimensions to accommodate advance signing.
	4.4. Define the distances and dimensions to accommodate pedestrian walkways, traffic lanes, safety zones and portable pedestrian crossing facilities.
	4.5. State the requirements for the installation and use of warning lights.
	4.6. Define how signs, barriers, footway boards, ramps and road plates are securely installed.
	4.7. State how to check that equipment is fit for purpose.
	4.8. Specify the sequences for installing, positioning and removing equipment.
5. Provide portable traffic signals and Stop/Go traffic control	5.1. Inspect and test signals for correct operation.
	5.2. Position signals to meet the site location requirements.
	5.3. Position signals in the correct sequence.
	5.4. Adjust signal controls and timings to suit traffic conditions.
	5.5. Dismantle and remove signals in the correct sequence.
	5.6. Install and remove Stop/Go traffic control.
6. Understand how to provide portable traffic signals, Stop/Go and priority traffic control	6.1. Define the checks carried out to ensure that signals are operating correctly.
	6.2. State how the site location requirements affect the positioning of signals.
	6.3. Specify the correct sequence for installing, positioning, dismantling and removing signals.
	6.4. Define how the traffic conditions affect the adjustment of signal controls and timings.

	<p>6.5. Specify the appropriate site conditions for using:</p> <ul style="list-style-type: none"> a) Stop/Go boards b) Priority traffic control c) Give and take d) Stop work signs.
<p>7. Follow safe working practices</p>	<p>7.1. Follow current relevant health and safety regulations, standards and other legislation relating to:</p> <ul style="list-style-type: none"> a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	<p>7.2. Identify the current relevant health and safety regulations, standards and other legislation that must be applied in relation to:</p> <ul style="list-style-type: none"> a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Site location requirements** include:

- a) Proximity to schools and hospitals
- b) Users of the route (including those with special needs)
- c) Weather conditions (including icy roads, heavy rain, snow, fog)
- d) Volume of traffic
- e) Speed of traffic
- f) Lighting on highways
- g) Highway situations (including lack of footways; pedestrianised areas; emergency service access; width of traffic lanes, footways and safety zones; inadequate lane widths; serious congestion; private access; bus stops, parking places, obstruction of driver's view at bends and summits; roundabouts and junctions; footways, ramps, boards and road plates; railway level crossings; tramways; cycle lanes and cycle tracks)
- h) Different requirements for working at day and night
- i) Mobile works and minor works
- j) The safety zone (length of lead-in taper of cones (T); sideways clearance (S); longways clearance (L); length of exit taper of cones)
- k) Distances and dimensions and sizes for advance signing, traffic lanes, walkways and safety zones.

2. Those with **special needs** include:

- a) Visually impaired people
- b) People with disabilities
- c) Users of prams and pushchairs
- d) Users of wheelchairs and other physically impaired people
- e) Cyclists
- f) Young children
- g) Horse riders.

3. **Safe working practices** may include:

- a) Safe use of tools and equipment
- b) Use of PPE, including, as necessary: high visibility clothing, hard hat, gloves, protective footwear, waterproof clothing
- c) Precautions to minimise danger or inconvenience to road users
- d) Precautions to minimise danger or inconvenience to site personnel
- e) Precautions to minimise damage to equipment or apparatus.

4. **Equipment** may include, as necessary:

- a) Adequate range of signing, lighting and guarding equipment (including signs, cones, lights, footway boards, barriers/enhanced barriers)
- b) High visibility safety equipment
- c) Suitable materials to construct ramps or proprietary ramps used.

5. **Signals** include:

- a) Proprietary two-way electrical or engine powered portable traffic lights
- b) Set of Stop/Go boards.

Unit title	Excavation in the highway
Unit reference number	003
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to carry out excavation in the highway. The Learner will be able to identify the characteristics of different types of footway and carriageway, including their construction layers. Learners will be able to excavate safely, in line with the relevant specifications and codes of practice and will demonstrate the approved methods to safely support underground apparatus that is exposed during excavation. The Learner will also be able to identify, select and store excavated material that can be re-used as backfill.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand how to identify different types of footway and carriageway	1.1. Identify the recognised footway and carriageway designs in accordance with the appropriate specifications.
	1.2. Define the different construction layers within the recognised footway and carriageway designs in accordance with the appropriate specifications.
	1.3. Identify the characteristics of recognised footway and carriageway designs.
	1.4. Establish the characteristics of high duty and high amenity footways, footpaths and cycle tracks.
2. Excavate in the highway	2.1. Select and use the appropriate personal protective equipment for excavation in the highway.
	2.2. Ensure the worksite is safe and that the appropriate signing, lighting and guarding is in place.
	2.3. Identify the type of footway or carriageway to be excavated.
	2.4. Select the appropriate tools and equipment required to safely excavate in the highway.
	2.5. Ensure that the equipment selected is fit for purpose.

	2.6. Employ the appropriate safe working practices to reduce the risk of damaging underground services.
	2.7. Safely operate equipment to cut and break-up surface layers of the footway or carriageway.
	2.8. Utilise the appropriate techniques to safely excavate the construction layers and avoid undercutting.
	2.9. Separate and safely store excavated materials for re-use or disposal.
	2.10. Ensure that excavation techniques minimise the risk of reinstatement failure.
	2.11. Ensure excavations meet the specified dimensions and comply with the appropriate specifications.
3 Understand how to excavate in the highway	3.1. Identify the appropriate tools and equipment used to safely excavate in the highway.
	3.2. Define the requirements that equipment must meet to be considered fit for purpose.
	3.3. Define the appropriate specifications that should be referred to when excavating in the highway.
	3.4. Define the appropriate methods used to identify areas of high risk relating to excavation activities.
	3.5. Identify the relevant control measures that should be in place when excavating in the highway.
	3.6. Define the appropriate precautions to take when excavating in areas of high risk.
	3.7. Define the characteristics of excavation and trench categories in accordance with the appropriate specifications.

	3.8. Identify the appropriate measures that should be taken to ensure that the excavations can accommodate materials and equipment for compaction and reinstatement.
4. Support underground utilities apparatus during excavation in the highway	4.1. Identify damage to utilities apparatus and take the appropriate actions to limit further damage and reduce the risks to health, safety and the environment.
	4.2. Select and safely use the appropriate equipment and materials to support and protect exposed utilities apparatus from damage.
5. Understand how to support and protect underground apparatus during excavation in the highway	5.1. State the potential consequences of damaging different types of utilities apparatus.
	5.2. Identify the steps that should be taken when reporting damage to utilities apparatus.
	5.3. State the appropriate methods to be used to safely support and protect exposed utilities apparatus.
	5.4. Define the circumstances in which trench support systems would be required, and where to find the guidelines for their installation and safe use.
6. Identify, select and store excavated materials for re-use as backfill	6.1. Identify and segregate materials that are suitable for re-use as backfill or sub-base.
	6.2. Identify and segregate materials that are not suitable for re-use and provide safe temporary storage for them.
	6.3. Demonstrate how to safely store and protect re-usable materials from contamination and excessive drying or wetting.
7. Understand how to identify, select and store excavated materials for re-use as backfill	7.1. Define how excavated materials are classified and considered suitable or unsuitable for re-use as backfill material.

	7.2. Identify the circumstances in which excavated materials can be re-used.
	7.3. Define how to protect excavated re-usable materials from: a) Contamination b) Loss of fines c) Excessive drying or wetting.
	7.4. State the requirements that excavated chalk should comply with for it to be considered suitable for re-use as backfill material.
	7.5. Define how to safely store and dispose of materials that are unsuitable for re-use.
	7.6. State the consequences of using material for backfill or sub-base.
8. Follow safe working practices	8.1. Perform tasks in line with the relevant health and safety legislation and guidance documents relating to: a) Working practices within the construction environment b) Working practices specific to excavation in the highway.
	8.2. Identify the relevant health and safety legislation and guidance documents relating to: a) Working practices within the construction environment b) Working practices specific to excavation in the highway.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Types of footway and carriageway** include:
 - a) Flexible footway and carriageway
 - b) Modular footway and carriageway
 - c) Rigid footway and carriageway
 - d) Composite carriageway.
2. **Construction layers** in footways and carriageways include:
 - a) Surface course
 - b) Binder course
 - c) Base (road base)
 - d) Sub-base
 - e) Blocks or sett
 - f) Slab
 - g) Bed.
3. **Specifications, legislation and guidance documents** include:
 - a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
 - b) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
 - c) HSE (2006). *Health and safety in construction HSG150*. Third edition.
 - d) Manufacturers' operating procedures for powered tools and plant.
4. **Suitable equipment** may include as necessary:
 - a) Appropriate hand tools – including square and round mouth shovels
 - b) Appropriate powered equipment – including pavement saw and breakout tools
 - c) Appropriate equipment for supporting exposed utilities – including slings, ropes and props.
5. **Safe working practices** may include:
 - a) Safe use of tools and equipment
 - b) Use of appropriate PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor/goggles, dust mask
 - c) Use of risk assessment methods to identify and control hazards on-site
 - d) Precautions to minimise danger or inconvenience to road users
 - e) Precautions to minimise danger or inconvenience to site personnel
 - f) Precautions to minimise damage to equipment or apparatus.
6. **Utilities apparatus** includes:
 - a) Plastic and metallic gas mains
 - b) Plastic and metallic water mains
 - c) Sewers and drains
 - d) High- and low-voltage electricity cables
 - e) Telecommunications and television cables.

7. Excavated materials described in specifications include:

- a) Class A
- b) Class B
- c) Class C
- d) Class D
- e) Class E.

8. High risk areas include:

- a) Working in close proximity to utilities apparatus
- b) Working in close proximity to trees
- c) Bad ground conditions
- d) Bridge abutments
- e) Special engineering difficulty.

Unit title	Reinstatement and compaction of backfill materials
Unit reference number	004
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to backfill an excavation. The Learner will be able to identify recognised footway and carriageway designs and their different construction layers in order to select the appropriate backfill materials to reinstate excavations safely to the correct level. The Learner will also be able to correctly identify and safely dispose of surplus materials and materials that cannot be re-used.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Understand how to identify different types of footway and carriageway	1.1. Identify the recognised footway and carriageway designs in accordance with the appropriate specifications.
	1.2. Define the different construction layers within the recognised footway and carriageway designs in accordance with the appropriate specifications.
	1.3. Identify the characteristics of recognised footway and carriageway designs.
	1.4. Establish the characteristics of high duty and high amenity footways, footpaths and cycle tracks.
2. Select materials for backfill	2.1. Identify the type of footway or carriageway to be reinstated.
	2.2. Identify and select excavated materials that are suitable for backfill.
	2.3. Identify, segregate and temporarily store excavated materials not suitable for re-use.
	2.4. Identify imported materials that are suitable for use as backfill.
	2.5. Store backfill materials safely and protect them from excessive drying and wetting.
	2.6. Unload and provide safe storage for imported materials.

	2.7. Identify the correct backfill materials to use in high risk areas.
	2.8. Store materials on-site without obstructing or damaging essential facilities and street furniture.
3. Understand how to select materials for backfill	3.1. Identify the different type of excavated materials and their suitability for use as backfill.
	3.2. Define the different types of imported materials and their suitability for use as backfill.
	3.3. State why excavated materials may be unsuitable for backfill.
	3.4. Define the correct storage arrangements for backfill materials.
	3.5. Identify backfill materials that are suitable as surround to utilities apparatus.
	3.6. State the consequences of using unsuitable material for backfill.
	3.7. Identify the correct backfill materials to use in high risk areas.
	3.8. State how to prevent the obstruction or damage of essential facilities and street furniture.
4. Backfill the excavation	4.1. Select reinstatement and compaction equipment that: <ul style="list-style-type: none"> a) Is suitable to meet the material type and excavation dimensions b) Avoids damage to underground utilities apparatus and highways services c) Is in working condition and safe to use.
	4.2. Reinstatement the backfill layer to the correct level.
	4.3. Complete backfilling without damaging underground utilities apparatus.

	4.4. Compact backfill materials to provide a firm base for advancement and minimise the risk of reinstatement failure.
	4.5. Confirm the degree of compaction has been achieved.
5. Understand how to backfill an excavation	5.1. Define the factors that influence the selection of reinstatement and compaction equipment to suit the material type and excavation dimensions.
	5.2. Identify the types of equipment that will minimise the potential for damage to underground utilities apparatus.
	5.3. State the level of backfill layer required for different footway and carriageway designs in accordance with the appropriate specifications.
	5.4. Identify the required amount of compaction for each layer using specific equipment.
	5.5. State how the degree of compaction can be confirmed.
6. Dispose of surplus materials	6.1. Identify excavated materials that are surplus to requirements of unsuitable for re-use.
	6.2. Store surplus materials and those unsuitable for re-use in a safe temporary storage.
	6.3. Ensure that materials for disposal are loaded safely for transportation.
7. Understand how to dispose of surplus materials	7.1. Specify how excavated materials are determined as surplus to requirements or unsuitable for re-use.
	7.2. State the importance of storing unsuitable and re-usable materials separately.
	7.3. State when surplus materials should be removed from site.

8. Follow safe working practices	8.1. Follow current relevant health and safety regulations, standards and other legislation relating to: a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	8.2. Identify the current relevant health and safety regulations, standards and other legislation that must be applied in relation to: a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	8.3. Leave the site in a clean and safe condition.
	8.4. Describe how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Types of footway and carriageway** include:
 - a) Flexible footway and carriageway
 - b) Modular footway and carriageway
 - c) Rigid footway and carriageway
 - d) Composite carriageway.
2. **Construction layers** in footways and carriageways include:
 - a) Surface course
 - b) Binder course
 - c) Base (roadbase)
 - d) Sub-base
 - e) Block or sett
 - f) Slab
 - g) Bed.
3. **Specifications and procedures** include:
 - a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
 - b) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
 - c) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
 - d) HSE (2006). *Health and safety in construction HSG150*. Third edition.
 - e) Manufacturers' operating procedures for powered tools and plant.
4. **Materials** encountered during reinstatement include:
 - a) Class A
 - b) Class B
 - c) Class C
 - d) Class D
 - e) Class E.
5. **Safe working practices** may include:
 - a) Safe use of tools and equipment
 - b) Use of appropriate PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
 - c) Use of risk assessment methods to identify and control hazards on-site
 - d) Precautions to minimise danger or inconvenience to road users
 - e) Precautions to minimise danger or inconvenience to site personnel
 - f) Precautions to minimise damage to equipment or apparatus.

6. **Equipment** for reinstatement may include as necessary:
 - a) Appropriate hand tools, including: square mouth shovel, tape measure, travelling site stick or depth gauge and hard bristle brooms
 - b) Appropriate powered equipment, including: vibrotamper or vibrating plate, percussive rammer and vibrating roller
 - c) Impact soil testing equipment.

7. **Utilities apparatus** includes:
 - a) Plastic and metallic gas mains
 - b) Plastic and metallic water mains
 - c) Sewers and drains
 - d) High- and low-voltage electricity cables
 - e) Telecommunications and television cables
 - f) Fibre optic cables.

8. **Highways services** includes:
 - a) Highway drainage
 - b) Culverts
 - c) Land drains
 - d) Street lighting and traffic signal equipment
 - e) Highways/road with special engineering controls.

9. **High risk areas** include:
 - a) As a surround for utilities' apparatus
 - b) In close proximity to trees
 - c) Bad ground conditions
 - d) Special engineering difficulty.

Unit title	Reinstatement of sub-base and base in non-bituminous materials
Unit reference number	005
Unit aim	
This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to reinstate sub-base and base in non-bituminous materials. The Learner will be able to prepare the subgrade to receive subsequent layers. The Learner will be able to identify, select and reinstate materials to be used for the sub-base or base correctly using the correct equipment. The Learner will also be able to correctly identify and safely dispose of surplus materials and materials that cannot be re-used.	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Prepare the backfill layer to receive subsequent layers	1.1. Remove loose and unacceptable materials from the area to be reinstated using suitable equipment.
	1.2. Identify and correct backfill layer defects using approved materials and suitable equipment.
	1.3. Use the appropriate equipment to check and confirm that the backfill layer is suitable and provides adequate depth to complete the remaining footway or carriageway layer construction.
2. Understand how to prepare the backfill layer for subsequent layers	2.1. State why loose and unacceptable materials are removed from the area to be reinstated.
	2.2. State how loose and unacceptable materials are removed from the area to be reinstated.
	2.3. State the purpose and requirements for a firm backfill layer.
	2.4. Identify materials that can be used to replace an inadequate backfill layer.
	2.5. State the potential consequences if backfill layer defects are not corrected.
3. Select and store materials for sub-base and base	3.1. Identify and select excavated materials that are suitable for re-use or disposal.
	3.2. Identify imported materials suitable for use in sub-base and base.

	3.3. Unload imported materials safely on-site.
	3.4. Store all materials safely on-site to prevent degradation.
4. Understand how to select materials for sub-base and base	4.1. Identify the different types of excavated and imported materials that are suitable for reinstating sub-base and base.
	4.2. Define the permitted range of alternative reinstatement materials (ARMs), stabilised materials for fill (SMFs) and other materials for use as surround to apparatus.
	4.3. Define how excavated materials suitable for re-use should be stored on-site to prevent degradation.
	4.4. State how to safely unload and store imported materials on-site.
	4.5. State how to prevent the obstruction or damage of essential facilities and street furniture.
5. Reinststate the sub-base and base layers	5.1. Select reinstatement equipment that is: <ul style="list-style-type: none"> a) Suitable to the material type and excavation dimensions b) In working condition and safe to use.
	5.2. Identify the level to which the sub-base and base layers should be reinstated.
	5.3. Reinststate the sub-base and base layers to the specified level using the correct quantities of materials.
	5.4. Calculate the materials required to achieve full compaction of the layer construction.
	5.5. Use selected compaction equipment to adequately compact the materials and layer thickness.
	5.6. Complete the sub-base and base layer construction to specifications.

6. Understand how to reinstate the sub-base and base layers	6.1. Define the factors that influence the selection of equipment for the prescribed operation.
	6.2. State how to measure the specified level of each layer.
	6.3. State the checks required to confirm that the sub-base and base layer has been constructed to the correct specifications.
7. Dispose of surplus materials	7.1. Identify materials that are unsuitable for re-use or surplus to requirements.
	7.2. Store surplus materials and those unsuitable for reuse in safe temporary storage.
	7.3. Ensure materials for disposal are loaded safely for transportation.
8. Understand how to dispose of surplus materials	8.1. Define how materials that are unsuitable for re-use or surplus to requirement are identified.
	8.2. State the importance of storing unsuitable and re-useable materials separately.
	8.3. State when surplus materials should be removed from site.
9. Follow safe working practices	9.1. Follow current relevant health and safety regulations, standards and other legislation relating to: <ul style="list-style-type: none"> a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	9.2. Identify the current relevant health and safety regulations, standards and other legislation that must be applied in relation to: <ul style="list-style-type: none"> a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.

	9.3. Leave the site in a clean and safe condition.
	9.4. Describe how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Equipment** includes:

- a) Hand tools, including: square and round mouth shovels, hand picks, hard bristle broom, measuring tape, hand rammer
- b) Powered equipment – including vibrotamper, vibrating plate, percussive rammer and vibrating roller.

2. **Safe working practices** include:

- a) Safe use of tools and equipment
- b) Use of appropriate PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
- c) Use of risk assessment methods to identify and control hazards on-site
- d) Precautions to minimise danger or inconvenience to road users
- e) Precautions to minimise danger or inconvenience to site personnel
- f) Precautions to minimise damage to equipment or apparatus.

3. **Specifications** and procedures include:

- a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
- b) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
- c) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
- d) HSE (2006). *Health and safety in construction HSG150*. Third edition.
- e) Manufacturers' operating procedures for powered tools and plant.

4. **Materials** identified for reinstating sub-base and base (roadbase) include:

- a) Granular Type 1 sub-base material
- b) Excavated granular sub-base material Class A
- c) Category 3 cement-bound material (CBM3)
- d) Foamed concrete.

5. **Materials** for disposal include:

- a) Unsuitable surplus materials
- b) Surplus materials that are suitable for re-use.

6. **Utilities apparatus** includes:

- a) Plastic and metallic gas mains
- b) Plastic and metallic water mains
- c) Sewers and drains
- d) High- and low-voltage electricity cables
- e) Telecommunications and television cables
- f) Fibre optic cables.

7. Highways services includes:

- a) Highway drainage
- b) Culverts
- c) Land drains
- d) Street lighting and traffic signal equipment
- e) Highways/road with special engineering controls.

Unit title	Reinstatement in cold-lay bituminous materials
Unit reference number	006
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to carry out reinstatement using cold-lay bituminous surfacing material. The Learner will be able to prepare the pavement layer to receive cold-lay surfacing materials. The Learner will be able to identify and select materials to be used for the reinstatement and construction of the cold-lay bituminous binder and surfacing layer using the correct equipment. The Learner will also be able to correctly identify and safely dispose of surplus materials and materials that cannot be re-used.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Prepare the layer of pavement structure to receive permanent cold-lay surfacing materials	1.1. Remove loose and unacceptable materials from the area to be reinstated using suitable equipment.
	1.2. Identify and correct pavement layer surface contamination or defect.
	1.3. Use suitable equipment to trim back edges where damage has occurred.
	1.4. Use suitable equipment to re-position displaced ironwork, kerbs and edge restraints in accordance with established levels.
	1.5. Use the specifications to confirm that the correct depth is left for the cold-lay surfacing layers.
	1.6. Check the polished stone value (PSV) of the permanent cold-lay surface course material meets specifications.
2. Understand how to prepare the layer of pavement structure to receive cold-lay surfacing materials	2.1. State why loose and unacceptable materials are removed from the area to be reinstated.
	2.2. State how loose and unacceptable materials are removed from the area to be reinstated.
	2.3. State the potential consequences of pavement layer surface contamination or defects.

	2.4. Define how pavement layer surface contamination or defects are identified and corrected.
	2.5. State how to identify and correct edge damage and undercut.
	2.6. Define how displaced ironwork, kerbs and edge restraints are repositioned.
	2.7. State the potential consequences of incorrect pavement layer construction.
3. Construct a cold-lay bituminous surfacing layer	3.1. Check that imported bituminous material complies with the specification.
	3.2. Select compaction equipment and ensure that it is: a) Suitable for the operation b) In working condition and safe to use.
	3.3. Seal edges of the cavity using specified edge sealant.
	3.4. Store cold-lay bituminous material to prevent contamination, oxidation and wetting.
	3.5. Spread and level cold-lay bituminous material in binder course and surface layers.
	3.6. Handle cold-lay bituminous material correctly.
	3.7. Reinstate around highway ironwork according to the specification.
	3.8. Compact the bituminous material according to the specification.
4. Understand how to construct a cold-lay bituminous surfacing layer	4.1. Define the factors that influence the selection of equipment for the prescribed operation.
	4.2. State the checks required to ensure that equipment is in working condition and safe to use.
	4.3. Define the handling and storage procedures for cold-lay bituminous material.

	4.4. State why cavity edges are sealed before placing surface layers.
	4.5. State how to determine the surcharge prior to compaction of cold-lay surfacing materials.
	4.6. Define the compaction procedures for cold-lay bituminous material.
	4.7. State how to confirm that the compacted layer thickness meets specifications.
5. Dispose of surplus materials	5.1. Define how materials that are unsuitable for re-use or surplus to requirements are identified.
	5.2. State the importance of storing unsuitable and re-usable materials separately.
	5.3. State when surplus materials should be removed from site.
6. Understand how to dispose of surplus materials	6.1. Define how materials that are unsuitable for re-use or surplus to requirements are identified.
	6.2. State the importance of storing unsuitable and re-usable materials separately.
	6.3. State when surplus materials should be removed from site.
7. Follow safe working practices	7.1. Follow current relevant health and safety regulations, standards and other legislation relating to: a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.

	<p>7.2. Identify the current relevant health and safety regulations, standards and other legislation that must be applied in relation to:</p> <ul style="list-style-type: none"> a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	<p>7.3. Leave the site in a clean and safe condition.</p>
	<p>7.4. Describe how to leave the site in a clean and safe condition.</p>

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Equipment** includes:

- a) Hand tools, including: square and round mouth shovels, hand pick, hard bristle broom, profile gauge and measuring tape
- b) Powered equipment, including: breakout equipment, road saw, disc cutter, vibrotamper, vibrating roller or vibrating plate and Turk's head brush or aerosol applied sealant.

2. **Safe working practices** include:

- a) Safe use of tools and equipment
- b) PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, glasses, dust mask
- c) Use of risk assessment methods to identify and control hazards on-site
- d) Precautions to minimise danger or inconvenience to road users and pedestrians
- e) Precautions to minimise danger or inconvenience to site personnel
- f) Precautions to minimise damage to equipment or apparatus.

3. **Specifications and procedures** include:

- a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
- b) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
- c) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
- d) HSE (2006). *Health and safety in construction HSG150*. Third edition.
- e) Manufacturers' operating procedures for powered tools and plant.

4. **Materials** identified for reinstating a cold lay bituminous surfacing layer include:

- a) Deferred set mixtures for reinstatement
- b) Permanent cold lay binder and surfacing materials
- c) Cold edge sealant.

5. **Materials** for disposal include:

- a) Unsuitable surplus materials
- b) Surplus materials that are suitable for reuse.

Unit title	Reinstatement in hot-lay bituminous materials
Unit reference number	007
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to carry out reinstatement using hot-lay bituminous surfacing material. The Learner will be able to prepare the pavement layer to receive hot-lay surfacing materials. The Learner will be able to identify and select materials to be used for the reinstatement and construction of the hot-lay bituminous binder course and the asphalt surface course using the correct equipment. The Learner will also be able to correctly identify and safely dispose of surplus materials and materials that cannot be re-used.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Prepare the layer of pavement structure to receive hot-lay surfacing materials	1.1. Remove loose, unacceptable or interim reinstatement materials from the area to be reinstated using suitable equipment.
	1.2. Identify and correct any pavement layer surface contamination or defects.
	1.3. Use suitable equipment to trim back edges where damage has occurred.
	1.4. Use suitable equipment to re-position displaced ironwork, kerbs and edge restraints in accordance with established levels.
	1.5. Use the specifications to confirm that the correct depth is left for the hot-lay binder and surface course.
2. Understand how to prepare the layer of pavement structure to receive hot-lay surfacing materials	2.1. State how the depth is checked to confirm that it is suitable for reinstating binder and surface course layers.
	2.2. State why loose and unacceptable materials are removed from the area to be reinstated.
	2.3. State the potential consequences of pavement layer surface contamination or defects.
	2.4. Define how pavement layer contamination or defects are identified and corrected.

	2.5. State how to identify and correct edge damage and undercut.
	2.6. Define how displaced ironwork, kerbs and edge restraints are repositioned.
	2.7. State the potential consequences of incorrect pavement layer construction.
3. Construct the bituminous binder course	3.1. Confirm the delivery temperature of hot-lay bituminous material prior to laying.
	3.2. Select compaction equipment and ensure that it is: <ul style="list-style-type: none"> a) Suitable for the operation b) In working condition and safe to use.
	3.3. Maintain specialist tools at the correct temperature for working with hot-bituminous material.
	3.4. Seal the edges according to the specification.
	3.5. Confirm the polished stone value (PSV) of the surface course materials meets specifications.
	3.6. Select, spread and level hot-lay bituminous material binder course.
	3.7. Handle hot-lay bituminous material correctly.
	3.8. Store hot-lay bituminous material correctly.
	3.9. Compact the hot bituminous material according to the specification.
4. Understand how to construct a bituminous binder course	4.1. State the quality requirements of the selected material.
	4.2. State the temperature ranges of hot-lay bituminous materials.
	4.3. Define why it is important to maintain tool temperatures when working with hot-lay bituminous materials.

	4.4. State how the bituminous material in base and/or binder course and surface course layers is spread and levelled.
	4.5. Define the factors that influence the selection of equipment for the prescribed operation.
	4.6. State the checks required to ensure that equipment is in working condition and safe to use.
	4.7. Define the handling and storage procedures for hot-lay bituminous material.
	4.8. State why cavity edges are sealed before placing surface layers.
	4.9. Define the compaction procedures for hot-lay bituminous material.
	4.10. State how to confirm that compacted layer thickness meets specifications.
5. Construct the surface course	5.1. Apply tack coat as necessary.
	5.2. Check the temperature of hot bituminous material before laying it.
	5.3. Maintain specialist tools at the appropriate temperature for working with bituminous material.
	5.4. Handle hot-lay bituminous material correctly.
	5.5. Store hot-lay bituminous material correctly.
	5.6. Use suitable equipment to select, spread and level hot bituminous material in a surface course layer.
	5.7. Select compaction equipment that is in working condition and safe to use.
	5.8. Compact the hot-lay bituminous material according to the specification.
	5.9. Make adequate provision for skid resistance and texture depth in the surface course.

6. Understand how to construct the surface course	6.1. Define the correct procedures and requirements for applying tack coat.
	6.2. Define the quality requirements for the selected material.
	6.3. State why it is important to use hot-lay bituminous material at the correct temperature.
	6.4. State why it is important to maintain tool temperatures when working with hot-lay bituminous materials.
	6.5. Define how to spread and level bituminous material in an asphalt surface course layer.
	6.6. Define how to measure material temperatures before use.
	6.7. Define factors that influence the selection of equipment for the prescribed operation.
	6.8. Define the handling and storage procedures for hot-lay bituminous material.
	6.9. State how to check that equipment is in working condition and safe to use.
	6.10. Define the compaction procedures for hot-lay bituminous material.
	6.11. Define how to use overbreak to vertical surfaces.
	6.12. State how cavity edges are sealed before placing surface layers.
	6.13. State how to confirm that compacted layer thickness meets specifications.
	6.14. State the potential consequences of incorrect paver layer constructions.
6.15. State the method used to ensure skid resistance and texture depth from specifications.	
7. Dispose of surplus materials	7.1. Identify materials that are unsuitable for re-use or surplus to requirements.

	7.2. Store surplus materials and those unsuitable for reuse in safe temporary storage.
	7.3. Ensure materials for disposal are loaded safely for transportation.
8. Understand how to dispose of surplus materials	8.1. Define how materials that are suitable for re-use or surplus to requirements are identified.
	8.2. State the importance of storing unsuitable and re-usable materials separately.
	8.3. State when surplus materials should be removed from site.
9. Follow safe working practices for locating and avoiding underground apparatus and highway services	9.1. Follow current relevant health and safety regulations, standards and other legislation relating to: <ul style="list-style-type: none"> a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	9.2. Identify the current relevant health and safety regulations, standards and other legislation that must be applied to: <ul style="list-style-type: none"> a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	9.3. Leave the site in a clean and safe condition.
	9.4. Describe how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Equipment** includes:

- a) Hand tools, including: square and round mouth shovels, hand pick, hard bristle broom, profile board, measuring tape, rake, hot hand tamper, tool heater, wheelbarrow, water butt, probe thermometer, bitumen bucket, edge seal applicator, Turk's head brush.
- b) Powered equipment, including: breakout equipment, pavement saw, vibrotamper, vibrating roller or vibrating plate, disc cutter, road saw
- c) Tool heater

2. **Safe working practices** include:

- a) Safe use of tools and equipment
- b) PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, glasses, dust mask
- c) Use of risk assessment methods to identify and control hazards on-site
- d) Precautions to minimise danger or inconvenience to road users and pedestrians
- e) Precautions to minimise danger or inconvenience to site personnel
- f) Precautions to minimise damage to equipment or apparatus
- g) Safe working practices for working with molten bitumen
- h) Personal hygiene measures in connection with skin contamination.

3. **Specifications and procedures** include:

- a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
- b) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
- c) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
- d) HSE (2006). *Health and safety in construction HSG150*. Third edition.
- e) Manufacturers' operating procedures for powered tools and plant.

4. **Materials** identified for constructing a bituminous binder course include:

- a) Dense binder course materials (20mm nominal aggregate size), hot rolled asphalt 50/20 binder course
- b) Close graded surface course materials (10mm aggregate size), hot rolled asphalt 30/14 surface course.

5. **Materials** identified for constructing an asphalt concrete surface course to BS EN 13108 and PD 6691 in accordance with specifications to include:

- a) Hot rolled asphalt binder and surface course
- b) Close graded surface course materials (10mm stone size)
- c) Asphalt concrete dense surface course
- d) Stone mastic asphalt surface and binder course
- e) Pre-coated 14mm or 20mm chippings
- f) Edge sealants
- g) Tack coat.

6. **Materials** for disposal include:

- a) Unsuitable surplus materials
- b) Surplus materials that are suitable for re-use.

7. Procedures for handling, transportation and laying of asphalt concrete in accordance with specifications BS 594987 and PD 6691.

Note: These standards and documents replace earlier ones and should be used in conjunction with the BS EN 13108.

Unit title	Reinstatement of concrete slabs
Unit reference number	008
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to carry out the reinstatement of a concrete slab. The Learner will be able to prepare the sub-base to receive the concrete slab. The Learner will be able to prepare the edges of the existing slab for concrete reinstatement, lay mesh reinforcement and form the concrete slab using the correct equipment and materials. The Learner will also be able to correctly identify and safely dispose of surplus materials and materials that cannot be re-used.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Prepare sub-base to receive concrete slab	1.1. Remove loose and unacceptable materials from the area to be reinstated using suitable equipment.
	1.2. Identify and correct any defects in the sub-base using specified materials.
	1.3. Select sub-base compaction equipment and ensure that it is: <ul style="list-style-type: none"> a) Suitable for the operation b) In working condition and safe to use.
	1.4. Compact the sub base according to specification.
	1.5. Use the specification to confirm that the finished sub-base level accommodates the correct slab thickness.
2. Understand how to prepare sub-base to receive concrete slab	2.1. State why loose and unacceptable materials are removed from the area to be reinstated.
	2.2. State how loose and unacceptable materials are removed from the area to be reinstated.
	2.3. Identify different sub-base defects that could be encountered.
	2.4. Identify approved sub-base materials for replacing unacceptable materials.
	2.5. Define the procedures for replacing defective sub-base materials with approved materials.

	2.6. Define the factors that influence the selection of equipment for the prescribed operation.
	2.7. State the checks required to ensure that equipment is in working condition and safe to use.
	2.8. State how to check that the sub-base material is adequately compacted.
	2.9. Define how the cavity depth is checked to ensure it will accommodate the specified slab thickness.
3. Prepare the edges of existing slab to receive concrete reinstatement	3.1. Saw cut the edge of the existing slab according to the specification, using the appropriate equipment.
	3.2. Prepare the unsawn section of the exposed slab edge according to the specification to form a support using steel dowel bars or taper edge support.
	3.3. Place the slip membrane in position and overlap it.
	3.4. Clean and wet all edges prior to placing the concrete.
4. Understand how to prepare the edges of existing slab to receive concrete reinstatement	4.1. State how to correctly saw cut the edge of an existing slab.
	4.2. State how to rough cut the unsawn section of the exposed slab edge to form a taper-edge support.
	4.3. Define the support requirements for concrete slab reinstatement using dowel bars including: a) How to drill the unsawn section to provide a sliding fit for dowel bars b) The diameter and length of dowel bars required for the reinstatement c) How to cut and position dowel bars.
	4.4. Define the problems that may be caused by not placing slip membranes in accordance with specifications.

	4.5. State the importance of cleaning and wetting the edges of the existing slab prior to the placement of concrete.
5. Lay mesh reinforcement	5.1. Expose the existing mesh reinforcement.
	5.2. Select new mesh reinforcement to match the existing reinforcement.
	5.3. Cut the mesh reinforcement to the correct size, including the required overlap.
	5.4. Tie the new mesh reinforcement to the existing reinforcement.
6. Understand how to lay mesh reinforcement	6.1. State the minimum length of the existing reinforcement to expose, and when to use further trimming.
	6.2. Define the factors that influence the selection of mesh reinforcement.
	6.3. State the procedure for measuring and cutting mesh reinforcement.
	6.4. Define how to position new reinforcement and how to attach it to existing reinforcement.
7. Form concrete slab	7.1. Replace missing or damaged joints to match existing joints.
	7.2. Carry out slump testing of concrete to confirm workability.
	7.3. Place concrete to a uniform level according to the specification.
	7.4. Compact the concrete using suitable equipment to achieve maximum density.
	7.5. Finish the concrete surface to the approved texture to ensure skid resistance.
	7.6. Apply suitable curing method appropriate to prevailing conditions.

8. Understand how to form concrete slab	8.1. Identify the types of carriageway on which concrete reinstatement is carried out.
	8.2. State the correct procedures for replacing and constructing different types of joint.
	8.3. Define how to check that concrete conforms to specifications and quality requirements.
	8.4. Identify equipment required to compact concrete safely and achieve maximum density.
	8.5. State the strength of concrete required prior to opening to traffic.
	8.6. Define how to confirm the workability of concrete.
	8.7. State the texture and skid resistance required for the finished surface.
	8.8. Define the methods and purpose of curing concrete according to prevailing conditions.
9. Dispose of surplus materials	9.1. Identify materials that are unsuitable for re-use or surplus to requirements.
	9.2. Store surplus materials and those unsuitable for reuse in safe temporary storage.
	9.3. Ensure materials for disposal loaded safely for transportation.
10. Understand how to dispose of surplus materials	10.1. Define how materials that are unsuitable for re-use or surplus to requirements are identified.
	10.2. State the importance of storing unsuitable and re-usable materials separately.
	10.3. State when surplus materials should be removed from site.

11. Follow safe working practices	11.1. Follow current relevant health and safety regulations, standards and other legislation relating to: a) Working practices withing the construction environment b) Working practices specific to any practical task that they are required to carry out.
	11.2. Identify the current health and safety regulations, standards and other legislation that must be applied in relation to: a) Working practices withing the construction environment b) Working practices specific to any practical task that they are required to carry out.
	11.3. Leave the site in a clean and safe condition.
	11.4. Describe how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Equipment** includes:

- a) Hand tools, including, as necessary: square mouth shovel, hand pick, rake, hand rammer, reinforcing bar cutters, wire cutting tools, trowel, hand tamping beam, hard bristle broom
- b) Powered equipment, including, as necessary, vibrotamper, powered concrete cutting equipment, powered concrete drill, powered saw, a proprietary vibrator.

2. **Sub-base material** includes:

- a) Granular sub-base Type 1 material
- b) Pavement quality concrete (as described in specifications and SHW 1000)
- c) Alternative reinstatement materials (ARMs).

3. **Safe working practices** may include:

- a) Safe use of tools and equipment
- b) Use of appropriate PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
- c) Use of risk assessment methods to identify and control hazards on-site
- d) Precautions to minimise danger or inconvenience to road users
- e) Precautions to minimise danger or inconvenience to site personnel
- f) Precautions to minimise damage to equipment or apparatus.

4. **Specifications and procedures** include:

- a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
- b) Standards for Highways (2016). *Specification for Highway Works - Series 1000 (Road Pavements – Concrete Materials)*. Volume 1.
- c) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
- d) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
- e) HSE (2006). *Health and safety in construction HSG150*. Third edition.
- f) Manufacturers' operating procedures for powered tools and plant.

5. **Support** must be provided using:

- a) Steel dowel bars of 20mm or 25mm nominal diameter.

6. The **mesh reinforcement** includes standard weights of mesh reinforcement.

7. **Joints** include:

- a) Contraction joints
- b) Expansion joints
- c) Warping joints.

8. The **concrete** includes:
 - a) Class 32/40 concrete
 - b) Air entrainment additive.

9. **Materials** for disposal include:
 - a) Unsuitable surplus materials
 - b) Surplus materials that are suitable for re-use.

10. Types of carriageway includes types 0, 1, 2, 3 and 4 concrete and bituminous overlaid concrete roads.

Unit title	Reinstatement of modular surfaces, concrete footways
Unit reference number	009
Unit aim	
This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to carry out the reinstatement of modular surfaces and concrete footways. The Learner will be able to remove existing modular or concrete surfacing, prepare the sub-base, lay bedding materials and modular or concrete surfacing using the correct equipment. The Learner will also be able to correctly identify and safely dispose of surplus materials and materials that cannot be re-used.	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Remove existing modular and concrete surfacing	1.1. Select equipment and ensure that it is: a) Suitable for the prescribed operation b) In working condition and safe to use.
	1.2. Take up the existing modules and concrete surfacing without causing unnecessary damage.
	1.3. Remove any adhesive residues and brush modules clean.
	1.4. Identify any damaged modules and set them aside for disposal or for use in an interim reinstatement.
	1.5. Set aside broken concrete for disposal.
	1.6. Identify modules that are suitable for re-use in permanent reinstatement.
	1.7. Stack modules for reuse safely on-site.
2. Understand how to remove existing modular and concrete surfacing	2.1. State the factors that influence the selection of equipment for the prescribed operation.
	2.2. State how to check that equipment is in working condition and safe to use.
	2.3. Define the methods or techniques used to avoid damage when taking up existing modules.
	2.4. Define the procedures for taking up concrete surfacing.

	2.5. State why adhesive residues are removed and modules brushed clean.
	2.6. Differentiate between: a) Damaged modules that cannot be reused b) Modules suitable for interim reinstatement c) Modules suitable for permanent reinstatement.
	2.7. State the storage methods for: a) Damaged modules that cannot be reused b) Modules suitable for interim reinstatement c) Modules suitable for permanent reinstatement d) Broken concrete.
3. Prepare sub-base	3.1. Remove loose and unacceptable materials from the area to be reinstated using suitable equipment.
	3.2. Identify any defects in the sub-base.
	3.3. Make good any defects in the sub-base using specified materials.
	3.4. Select sub-base compaction equipment and ensure that it is: a) Suitable for the operation b) In working condition and safe to use.
	3.5. Compact the sub-base according to the specification.
	3.6. Use suitable equipment to re-position displaced ironwork, kerbs and edge restraints in accordance with established levels.
4. Understand how to prepare the sub-base	4.1. State why loose and unacceptable materials are removed from the area to be reinstated.
	4.2. State how to remove loose and unacceptable materials from the area to be reinstated.

	4.3. Identify different sub-base defects that could be encountered.
	4.4. Identify approved sub-base materials for replacing defective materials.
	4.5. Define the procedures for replacing defective sub-base materials with approved materials.
	4.6. Define the factors that influence the selection of sub-base compaction equipment for the prescribed operation.
	4.7. State the checks required to ensure that sub-base compaction equipment is in working condition and safe to use.
	4.8. Define the consequences of poor reinstatement of sub-base materials.
	4.9. Define how displaced ironwork, kerbs and edge restraints are repositioned.
5. Lay bedding materials	5.1. Select equipment and ensure that it is: a) Suitable for the prescribed operation b) In working condition and safe to use.
	5.2. Select and lay the specified bedding material uniformly.
	5.3. Compact the bedding material as necessary.
6. Understand how to lay bedding materials	6.1. Define the factors that influence the selection of bedding materials.
	6.2. Define the factors that influence the selection of equipment for the prescribed operation.
	6.3. State the check required to ensure that equipment is in working condition and safe to use.
	6.4. State the importance of laying bedding material evenly and to a specified depth.
	6.5. State the specified tolerances for laying bedding material.

	6.6. Define the consequences of poor compaction of bedding materials.
7. Lay modular and concrete surfacing	7.1. Select equipment and ensure that it is: a) Suitable for the prescribed operation b) In working condition and safe to use.
	7.2. Select modules and concrete for the reinstatement operation.
	7.3. Position the modules to match the existing bond or pattern.
	7.4. Cut modules for reinstatement to the required size.
	7.5. Bed modules using suitable bedding material.
	7.6. Compact modules to the existing line and level.
	7.7. Apply and finish jointing material according to the specification.
	7.8. Lay and compact paving concrete according to the specification.
	7.9. Place a membrane and lay quality checked concrete surfacing.
	7.10. Texture the finished surface and cure the concrete.
8. Understand how to lay modular and concrete surfacing	8.1. Define the factors that influence the selection of equipment for the prescribed operation.
	8.2. Define the checks required to ensure that equipment is in working condition and safe to use.
	8.3. Identify modules and concrete that are suitable for different reinstatement operations.
	8.4. Identify the different bond patterns used in modular constructions.
	8.5. State the methods used for cutting modules.

	8.6. Define the procedures for bedding and compacting modules to the existing line and level.
	8.7. Define the procedures for applying and finishing jointing material.
	8.8. Define the consequences of inadequate compaction.
	8.9. Define the consequences of not replacing the membrane to specifications.
	8.10. State how concrete is checked to confirm it is acceptable for use.
	8.11. Define the procedures for laying the concrete surfacing.
	8.12. Define the procedures for applying a texture to the finished concrete surface.
	8.13. Define the procedures for curing the concrete.
9. Dispose of surplus materials	9.1. Identify materials that are unsuitable for re-use or surplus to requirements.
	9.2. Store surplus materials and those unsuitable for reuse in safe temporary storage.
	9.3. Ensure materials for disposal are loaded safely for transportation.
10. Understand how to dispose of surplus materials	10.1. Define how materials that are suitable for re-use or surplus to requirements are identified.
	10.2. State the importance of storing unsuitable and re-usable materials separately.
	10.3. State when surplus materials should be removed from site.

11. Follow safe working practices for laying modular and concrete surfaces	11.1. Follow current relevant health and safety regulations, standards and other legislation relating to: a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	11.2. Identify the current health and safety regulations, standards and other legislation that must be applied in relation to: a) Working practices within the construction environment b) Working practices specific to any practical task that they are required to carry out.
	11.3. Leave the site in a clean and safe condition.
	11.4. Describe how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Modules** must include:
 - a) Natural or pre-cast concrete paving slabs
 - b) Pre-cast concrete blocks or similar units.
2. **Concrete** is Class 25/30 concrete for footway concrete paving reinstatement.
3. **Equipment** includes:
 - a) Hand tools, including square and round mouth shovels, lifting and clearing tools (including hand pick, crowbar, bolster, club hammer, wire brush, hard bristle broom, rake), hand rammer, straight edge (or suitably cut) timber, trowel, a textured roller
 - b) Powered equipment, including concrete cutting equipment, concrete saw, vibrotamper, vibrating plate.
4. **Sub-base materials** include granular Type 1 sub-base or Class A material.
5. **Bedding material** includes:
 - a) Cement mortar or lime mortar
 - b) Sharp sand or fine aggregate.
6. **Safe working practices** include:
 - a) Safe use of tools and equipment
 - b) Use of PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
 - c) Use of risk assessment methods to identify and control hazards on-site
 - d) Precautions to minimise danger or inconvenience to road users
 - e) Precautions to minimise danger or inconvenience to site personnel
 - f) Precautions to minimise damage to equipment or apparatus.
7. **Specifications and procedures** include:
 - a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
 - b) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
 - c) BS 7533 Series
 - d) HSE (2006). *Health and safety in construction HSG150*. Third edition.
 - e) Manufacturers' operating procedures for powered tools and plant
 - f) Interpave (2012). *Guide to the properties, design, construction, reinstatement and maintenance of concrete block pavements*. Edition 2.
8. **Materials** for disposal include:
 - a) Unsuitable surplus materials
 - b) Surplus materials that are suitable for re-use.

Unit title	Monitoring signing, lighting and guarding
Unit reference number	010
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to successfully monitor the signing, lighting and guarding of a work site. The Learner will be able to monitor a work site survey to ensure that suitable provision is in place for the site location requirements. The Learner will be able to monitor the protection of pedestrians, site personnel and vehicular traffic on-site. The Learner will be able to monitor the provision and control of portable traffic signals in line with site location requirements and traffic conditions. The Learner will also be able to monitor site safety throughout the signing, lighting and guarding operation.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Monitor a work site survey	1.1. Ensure that the planned provision of footways, traffic lanes and safety zones from a site survey and risk assessment meet the requirements of: <ul style="list-style-type: none"> a) The site location b) Vehicular traffic and site traffic, including plant and machinery c) Pedestrians and site personnel, including people with special needs d) Road/highway authority/recognised codes of practice and specifications.
	1.2. Ensure that the planned provision of footways, traffic lanes and safety zones minimises disruption to traffic and provides for the safe passage of pedestrians.
	1.3. Ensure that the planned provision for vehicles and plant within the confines of the working area provides adequate coverage for the safety of people and vehicles in the vicinity.
	1.4. Check for issues with the planned provision arising from the site survey and confirm the appropriate action required.
	1.5. Carry out a site specific risk assessment in accordance with current health and safety regulations and codes of practice to determine the requirements for footways, traffic lanes, safety zones, works area and working space.

2. Understand how to monitor a work site survey	2.1. Define the requirements of the Code of Practice in respect of surveying the work site.
	2.2. State the health and safety requirements relating to surveying the work site.
	2.3. State the planning requirements for the provision of footways, traffic lanes and safety zones to meet the needs of: <ul style="list-style-type: none"> a) The site location b) Vehicular traffic and site traffic, including plant and machinery c) Pedestrians and site personnel, including people with special needs d) Road/highway authority/recognised codes of practice and specifications.
	2.4. Define how disruption to traffic can be minimised whilst ensuring the safe passage of pedestrians when planning provision of footways, traffic lanes and safety zones.
	2.5. State the planning requirements for the provision for vehicles and plant within the confines of the working area to ensure that it is adequate for: <ul style="list-style-type: none"> a) Traffic lanes b) Safe passage through the site c) Advance signing d) Type of traffic e) Volume of traffic f) Working near tramways and railway crossings.
	2.6. State the problems that can occur with planned provision arising from a work site survey, and the appropriate remedial action to resolve them.
	2.7. Define the appropriate site conditions for the use of stop/go, priority signing, and give and take systems of working.
	2.8. State the conditions or limitations for using the Stop Works sign.

	2.9. Define the appropriate circumstances for using mobile and short duration works.
3. Monitor the protection of pedestrians, vehicular traffic and site personnel	3.1. Ensure that personal protective equipment is selected to meet the job requirements.
	3.2. Assess the provision of footways, traffic lanes and safety zones for: <ul style="list-style-type: none"> a) The requirements of the site location b) The safe passage of pedestrians and vulnerable users c) Minimising disruption to and ensuring safety of vehicular traffic d) Any identified special needs.
	3.3. Confirm that the provision for controlling the movement of pedestrians, vehicles and plant within the confines of the working area: <ul style="list-style-type: none"> a) Minimises delay and inconvenience b) Makes adequate safety provisions.
	3.4. Ensure that equipment selected meets the site location requirements and any special needs.
	3.5. Ensure that pre-use inspection checks of equipment are completed.
	3.6. Monitor the positioning and removal of equipment according to the specified sequence.
	3.7. Check for problems with the protection of pedestrians, vehicular traffic and site personnel, and confirm the appropriate action required.
4. Understand how to monitor the protection of pedestrians, vehicular traffic and site personnel	4.1. Define the personal protective equipment to meet the job requirements.
	4.2. Define the factors governing the provision of footways, traffic lanes and safety zones and when it is necessary to liaise with the highway authority.

	<p>4.3. State how the equipment meets the requirements of the site location and any special needs, including:</p> <ul style="list-style-type: none"> a) The safe passage of pedestrians and vulnerable users b) Minimising disruption to and ensuring safety of vehicular traffic c) Site specific hazards. <p>4.4. Define the range of pre-use checks used to establish if equipment is fit for purpose and the required actions where equipment is deemed unfit for purpose.</p> <p>4.5. Identify the specified sequences for positioning and removing equipment.</p> <p>4.6. Define the potential problems with the protection of pedestrians, vehicular traffic and site personnel, and the appropriate remedial action.</p>
<p>5. Monitor the provision of portable traffic signals and Stop/Go traffic control</p>	<p>5.1. Monitor the inspection and testing of signals for correct operation.</p> <p>5.2. Ensure that signals are positioned in the correct sequence, and to meet the requirements of the site location.</p> <p>5.3. Monitor the adjustment of signal controls to suit the prevailing traffic conditions.</p> <p>5.4. Ensure that signals are dismantled and removed in line with the current relevant specifications and procedures.</p> <p>5.5. Ensure that signals are dismantled and removed in line with current relevant specifications and procedures.</p> <p>5.6. Ensure that Stop/Go traffic control is installed in a specified sequence.</p> <p>5.7. Check for any problems with the provision of portable traffic signals and Stop/Go traffic control and confirm the appropriate action required.</p>

6. Understand how to monitor the provision of portable traffic signals and Stop/Go traffic control	6.1. Define the specifications used to identify that portable traffic signals are suitable for use on the highway.
	6.2. State the procedures for inspecting and testing signals for correct operation.
	6.3. Define how the site location requirements affect the positioning of signals, and the circumstances under which the highway authority must be consulted.
	6.4. State the correct sequence for positioning signals.
	6.5. State how the prevailing traffic conditions affect the adjustment of signal controls.
	6.6. Define the requirements for dismantling and removal of portable traffic signals.
	6.7. Define the requirements for installation and removal of Stop/Go traffic control.
	6.8. State potential problems with the provision of portable traffic signals and Stop/Go traffic control and the appropriate remedial action.
7. Monitor site safety	7.1. Ensure that a site specific risk assessment has been carried out.
	7.2. Monitor site operations in accordance with the health and safety requirements.
	7.3. Assess site conditions in accordance with health and safety requirements.
	7.4. Ensure that safety equipment is available and fit for purpose.
	7.5. Ensure that safe working practices are followed in line with current relevant specifications.
	7.6. Check for risks to site safety, and confirm the appropriate action required.
8. Understand how to monitor site safety	8.1. Define the purpose of a site specific risk assessment.

	<p>8.2. State the health and safety requirements for site operations:</p> <ul style="list-style-type: none"> a) Works at or near railway property b) Mobile and short duration works c) Temporary light equipment failure.
	<p>8.3. State the safety equipment required during site operations and how to ensure that it is fit for purpose.</p>
	<p>8.4. Describe safe working practices on-site.</p>
	<p>8.5. Describe the potential risks to site safety and the appropriate remedial action.</p>

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Site location requirements** include:

- a) Proximity to schools and hospitals
- b) Users of the route (including those with special needs)
- c) Weather conditions (including icy roads, heavy rain, snow, fog, etc.)
- d) Volume of traffic
- e) Speed of traffic
- f) Lighting on highways
- g) Highway situations (including lack of footways; pedestrianised areas; emergency service access; width of traffic lanes, footways and safety zones; inadequate lane widths; serious congestion; private access; bus stops, parking places, etc.; obstruction of driver's view at bends and summits; roundabouts and junctions; footways, ramps, boards and road plates; railway level crossings; tramways; cycle lanes and cycle tracks)
- h) Different requirements for working at day and night
- i) Mobile works, minor works and short duration works
- j) The safety zone (length of lead-in taper of cones (T); sideways clearance (S); longways clearance (L); length of exit taper of cones).

2. Those with **special needs** include:

- a) Visually impaired people
- b) People with disabilities
- c) Users of prams and pushchairs
- d) Users of wheelchairs and other physically impaired people
- e) Cyclists
- f) Young children
- g) Horse riders.

3. **Safe working practices** include:

- a) Safe use of tools and equipment
- b) Use of PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, gloves, protective footwear, waterproof clothing
- c) Use of risk assessment methods to identify and control hazards on-site
- d) Precautions to minimise danger or inconvenience to road users
- e) Precautions to minimise danger or inconvenience to site personnel
- f) Precautions to minimise damage to equipment or apparatus.

4. **Equipment** may include, as necessary:

- a) Adequate range of signing, lighting and guarding equipment (including signs, cones, signals, warning lights, footway boards, barriers, portable traffic signals)
- b) High visibility safety equipment
- c) Suitable materials to construct ramps.

5. **Signals** include:

- a) Proprietary electrical or engine powered portable traffic lights
- b) Set of Stop/Go boards.

Unit title	Monitoring excavation in the highway
Unit reference number	011
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to monitor excavation in the highway. The Learner will be able to monitor excavation work in line with the relevant specifications and codes of practice and will demonstrate how to monitor the action taken to avoid damage to underground apparatus during excavation. The Learner will also be able to monitor the selection, storage and disposal of re-usable and unusable materials on-site, and they will be able to monitor site safety throughout the excavation operation.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Monitor excavation work in the highway	1.1. Ensure that the type of footway or carriageway has been identified correctly prior to excavation.
	1.2. Ensure that materials are excavated at all construction layers complying current specifications.
	1.3. Ensure that the techniques used to excavate minimise the risk of reinstatement failure.
	1.4. Ensure that the size of the excavation is sufficient for the work activity and future reinstatement.
	1.5. Check for any problems with the excavation work, and confirm the appropriate action required.
2. Understand how to monitor excavation in the highway	2.1. Identify the characteristics of recognised footway and carriageway designs.
	2.2. Describe the equipment required for excavating in the highway and the factors influencing their selection.
	2.3. Define the requirements that equipment must meet to be considered fit for purpose.
	2.4. Define the appropriate methods used to identify areas of high risk relating to excavation activities.

	2.5. Define the appropriate precautions to take when excavating in areas of high risk.
	2.6. State how to check that a trench has been excavated to the correct specifications.
	2.7. State how to check that a trench has been excavated to the correct specifications.
	2.8. State the excavation techniques that minimise subsequent reinstatement problems.
	2.9. Identify potential issues poor excavation work may cause and the appropriate remedial actions.
3. Monitor the action taken to avoid damage to underground apparatus during excavation	3.1. Ensure that utilities apparatus is located and marked correctly on-site.
	3.2. Ensure that exposed utilities apparatus is identified correctly.
	3.3. Ensure that precautions are taken to minimise the risk of damage to utilities apparatus.
	3.4. Identify damage to utilities apparatus and confirm the action required.
	3.5. Ensure that exposed utilities apparatus is safely supported and protected to prevent damage.
4. Understand how to monitor the action taken to avoid damage to underground apparatus during excavation	4.1. Define how to locate and mark the different types of utilities apparatus found in the highway.
	4.2. Specify the characteristics used to identify the different types of exposed utilities apparatus.
	4.3. State the potential consequences of damaging underground utilities apparatus.
	4.4. State the appropriate remedial action to take when underground utilities apparatus have been damaged.

	4.5. State the precautions required to avoid damage to utilities apparatus.
	4.6. Specify how to safely support and protect exposed apparatus.
	4.7. Define the circumstances in which trench support systems would be required, and where to find the guidelines for its installation and safe use.
5. Monitor the selection, disposal and storage of excavated materials	5.1. Ensure that excavated materials selected for re-use are tested following the guidance within the appropriate specification.
	5.2. Ensure that materials selected for disposal are confirmed as unsuitable for re-use.
	5.3. Ensure that re-usable materials are stored in line with the appropriate specifications and ensure that materials that cannot be re-used are stored and disposed of in line with current and relevant specifications and procedures.
	5.4. Check for any problems with the selection, storage and disposal of materials and confirm the appropriate actions required.
6. Understand how to monitor the selection, disposal and storage of excavated materials	6.1. Identify the range of backfill, sub-base materials that may be re-used.
	6.2. Define the factors influencing the selection of materials for re-use or for disposal and the consequences of using unsuitable materials.
	6.3. State the suitable and safe storage procedures for re-usable materials.
	6.4. Specify how the characteristics of excavated materials affect storage arrangements.
	6.5. Define the storage and disposal procedures for materials that cannot be re-used.

	6.6. State the potential problems with selection, storage and disposal of materials and the appropriate remedial action.
7. Monitor site safety	7.1. Ensure that a risk assessment has been carried out and that adequate control measures are in place.
	7.2. Monitor site operations in accordance with health and safety legislation and guidance.
	7.3. Assess site conditions in accordance with health and safety legislation and guidance.
	7.4. Ensure that safety equipment and personal protection equipment is available, in use and fit for purpose.
	7.5. Ensure that safe working practices are followed in line with the appropriate specifications.
	7.6. Review the sites safety hazards, and confirm the appropriate actions required.
8. Understand how to monitor site safety	8.1. Define the purpose of a site specific risk assessment.
	8.2. State the health and safety requirements for site operations.
	8.3. Define the health and safety requirements for different site conditions.
	8.4. Define the safety equipment required during site operations and how to ensure that it is fit for purpose.
	8.5. State the safe working practices on-site.
	8.6. Define the potential risks to site safety and the appropriate remedial action.
	8.7. State how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Specifications and procedures** include:
 - a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
 - b) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition
 - c) HSE (2006). *Health and safety in construction HSG150*. Third edition.
 - d) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
 - e) Street Works UK (2018). *Volume 1: Street Works UK Guidelines on the Positioning and Colour Coding of Underground Utilities' Apparatus*. Issue 5.
 - f) Manufacturers' operating procedures for powered tools and plant.
2. **Factors influencing the size and depth** of excavation and support equipment include:
 - a) Trench width, length and depth
 - b) Ease of access
 - c) Types of ground.
3. **Suitable equipment** includes, as necessary:
 - a) Hand tools
 - b) Powered equipment – pavement saw, breaking-out tools
 - c) Equipment to support exposed utilities – slings, ropes, props
 - d) Equipment to minimise dust nuisance.
4. **Safe working practices** include:
 - a) Safe use of tools and equipment
 - b) Use of PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
 - c) Use of risk assessment methods to identify and control hazards on-site
 - d) Precautions to minimise danger or inconvenience to road users
 - e) Precautions to minimise danger or inconvenience to site personnel
 - f) Precautions to minimise damage to equipment or apparatus.
5. **Utilities apparatus** includes:
 - a) Plastic and metallic gas mains
 - b) Plastic and metallic water mains
 - c) Sewers and drains
 - d) High- and low-voltage electricity cables
 - e) Telecommunications, television cables and fibre optic
 - f) Highway drainage.

6. **Excavated materials** include:

- a) Class A Graded granular
- b) Class B Granular
- c) Class C Cohesive granular
- d) Class D Cohesive
- e) Class E Unacceptable.

7. **Safety equipment** may include, as necessary:

- a) Adequate range of signing, lighting and guarding equipment (including signs, cones, signals, lamps, footway boards, barriers, portable traffic signals)
- b) High visibility safety equipment
- c) Suitable materials to construct ramps.

8. **High risk areas** include:

- a) Utilities apparatus
- b) In close proximity to trees
- c) Bad ground conditions
- d) Special engineering difficulty.

Unit title	Monitoring reinstatement and compaction of backfill materials
Unit reference number	012
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to monitor the reinstatement and compaction of backfill materials. The Learner will be able to monitor the selection and storage of backfill materials, monitor the selection of compaction plant for backfilling operations, monitor the construction of the backfill layer, and monitor the action taken to avoid damage to underground apparatus during backfilling. The Learner will also be able to monitor site safety throughout backfill operations.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Monitor the selection and storage of backfill materials in footway and carriageway reinstatement	1.1. Ensure that materials selected for re-use and imported materials are checked against the range of backfill materials permitted in the current specification.
	1.2. Ensure that the correct materials are selected for use as surround to utilities' apparatus and in sensitive areas.
	1.3. Ensure that the correct quantities of materials are calculated for use.
	1.4. Ensure that safe arrangements are made for the storage of re-usable and imported materials in accordance with current specifications and procedures.
	1.5. Ensure that safe temporary storage arrangements are made for materials not suitable for re-use in accordance with current specifications and procedures.
	1.6. Ensure that the quantities of materials selected for re-use meet the reinstatement requirements.
	1.7. Check for problems with the selection and storage of backfill materials and confirm the appropriate action required.
2. Understand how to monitor the selection and storage of backfill materials in footway and carriageway reinstatement	2.1. Identify the range of backfill materials permitted in the current specification.

	2.2. Define the factors that influence the selection of materials for use as backfill of for disposal.
	2.3. State the consequences of using unsuitable materials for backfill.
	2.4. Identify the materials that are suitable for use in high risk areas.
	2.5. Define the safe storage arrangements for: a) Re-usable materials b) Imported materials c) Materials unsuitable for re-use.
	2.6. State how the characteristics of materials affect storage arrangements.
	2.7. State the potential problems with selection and storage of backfill materials, and the appropriate remedial action.
3. Monitor the selection of plant for compaction of backfill material	3.1. Ensure that the compaction plant and equipment are: a) Suitable for the location and materials b) Suitable for the dimensions and access provisions of the site c) In good working condition and safe to use.
	3.2. Check for any problems with the selection of compaction plant and confirm the appropriate action required.
4. Understand how to monitor the selection of plant for compaction of backfill material	4.1. Define the factors that influence the selection of compaction plant and equipment.
	4.2. State how to check that the compaction plant is fit for purpose.
	4.3. State the potential problems with the selection of compaction plant, and the appropriate remedial action.

<p>5. Monitor the construction of the backfill layer</p>	<p>5.1. Ensure that the backfill layer is constructed in accordance with the:</p> <ul style="list-style-type: none"> a) Specification b) Existing pavement structure c) Road type.
	<p>5.2. Ensure that the backfill layer is checked using suitable equipment and materials for the job.</p>
	<p>5.3. Check that the backfill layer constructed correctly to:</p> <ul style="list-style-type: none"> a) The structural level b) The layer thickness c) The number of compaction passes and the degree of compaction d) High risk areas.
	<p>5.4. Check for any problems with the construction of the backfill layer and confirm the appropriate action required.</p>
<p>6. Understand how to monitor the construction of the backfill layer</p>	<p>6.1. State how to interpret the specification for constructing the backfill layer in footway and carriageway reinstatement.</p>
	<p>6.2. Define how to check the construction of the backfill layer to ensure:</p> <ul style="list-style-type: none"> a) The correct use of equipment and materials b) The achieved compaction level c) The correct layer thickness and degree of compaction d) Correct construction in high risk areas.
	<p>6.3. State the methods used to confirm that construction of the backfill layer meets specifications.</p>
	<p>6.4. State the potential problems with the construction of the backfill layer, and the appropriate remedial action.</p>
<p>7. Monitor the action taken to avoid damage to underground apparatus during backfill operations</p>	<p>7.1. Ensure that exposed utilities apparatus is identified correctly.</p>
	<p>7.2. Ensure that the exposed utilities apparatus is safely supported and protected.</p>

	7.3. Ensure that precautions are taken to minimise the risk of damage to utilities apparatus.
	7.4. Identify damage to underground utilities apparatus and confirm the action required.
8. Understand how to monitor the action taken to avoid damage to underground apparatus during backfill operations	8.1. State how to identify the different types of utilities apparatus on-site.
	8.2. Identify the different methods of safely supporting and protecting exposed utilities apparatus.
	8.3. Define the potential risks and consequences of damage to utilities apparatus.
	8.4. State the precautions required to avoid damage to utilities apparatus.
	8.5. State the potential problems arising from damage to utilities' apparatus, and the appropriate remedial action.
9. Monitor site safety	9.1. Ensure that a risk assessment has been carried out.
	9.2. Monitor site operations in accordance with health and safety requirements.
	9.3. Assess site conditions in accordance with health and safety requirements.
	9.4. Ensure that safety equipment is available and fit for purpose.
	9.5. Ensure that safe working practices are followed in line with current relevant specifications.
	9.6. Check for risks to site safety, and confirm the appropriate action required.
	9.7. Ensure that the site is left in a clean and safe condition.
10. Understand how to monitor site safety	10.1. Define the purpose of a site specific risk assessment.
	10.2. State the health and safety requirements for site operations.

	10.3. Define the health and safety requirements for different site conditions.
	10.4. Define the safety equipment required during site operations and how to ensure that it is fit for purpose.
	10.5. State the safe working practices on-site.
	10.6. Define the potential risks to site safety and the appropriate remedial action.
	10.7. State how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Materials** include:
 - a) Class A Graded granular
 - b) Class B Granular
 - c) Class C Cohesive Granular
 - d) Class D Cohesive
 - e) Class E. Unacceptable
2. **Specifications and procedures** include:
 - a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
 - b) HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
 - c) HSE (2006). *Health and safety in construction HSG150*. Third edition.
 - d) Manufacturers' operating procedures for powered tools and plant
 - e) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
3. **Safe working practices** may include:
 - a) Safe use of tools and equipment
 - b) Use of appropriate PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
 - c) Use of risk assessment methods to identify and control hazards on-site
 - d) Precautions to minimise danger or inconvenience to road users
 - e) Precautions to minimise danger or inconvenience to site personnel
 - f) Precautions to minimise damage to equipment or apparatus.
4. **Compaction plant/powering equipment** includes:
 - a) Vibrotamper
 - b) Vibrating plate
 - c) Vibrating roller
 - d) Percussive rammer
 - e) Hand rammer.
5. Measuring **equipment** may include, as necessary:
 - a) Measuring devices, rule and tape
 - b) Impact soil testing equipment.
6. **Utilities apparatus** includes:
 - a) Plastic and metallic gas mains
 - b) Plastic and metallic water mains
 - c) Sewers and drains
 - d) High- and low-voltage electricity cables
 - e) Telecommunications and television cables.

7. Utilities apparatus is **safely supported and protected** using:
 - a) Slings
 - b) Ropes
 - c) Props.

8. **Safety equipment** may include, as necessary:
 - a) Adequate range of signing, lighting and guarding equipment (including signs, cones, signals, lamps, footway boards, barriers, portable traffic signals)
 - b) High visibility safety equipment
 - c) Suitable materials to construct ramps.

9. **High risk areas** include:
 - a) The surround for utilities' apparatus
 - b) In close proximity to trees
 - c) Bad ground conditions
 - d) Special engineering difficulty.

Unit title	Monitoring reinstatement of sub-base and base in non-bituminous materials
Unit reference number	013
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to monitor the reinstatement of sub-base and base in non-bituminous materials. The Learner will be able to monitor the selection of non-bituminous materials, monitor the selection of compaction plant for the reinstatement of sub-base and base and monitor the construction of the sub-base and base. The Learner will also be able to monitor site safety throughout sub-base and base reinstatement.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Monitor the selection of non-bituminous materials for sub-base and base reinstatement	1.1. Ensure that excavated materials for reuse or disposal are identified and checked against the current specification.
	1.2. Ensure that imported materials selected for use are identified and checked against current specification.
	1.3. Ensure that the quantities of materials selected for use meet reinstatement requirements.
	1.4. Ensure that re-usable and imported materials are stored in accordance with current specifications and procedures.
	1.5. Ensure that safe temporary storage arrangements are made for materials not suitable for re-use in accordance with current specifications and procedures.
	1.6. Check for any problems that arise with the selection and storage of sub-base and base (roadbase) materials and confirm the appropriate action required.
2. Understand how to monitor the selection of non-bituminous materials for sub-base and base reinstatement	2.1. Identify the range of sub-base and base materials permitted in the current specification.
	2.2. Describe the factors influencing the selection of materials for use in sub-base and base and the consequences of using unsuitable materials.

	<p>2.3. Calculate quantities of different materials that are used in sub-base and base reinstatement.</p>
	<p>2.4. Define the safe storage arrangements for:</p> <ul style="list-style-type: none"> a) Re-usable b) Imported materials c) Materials unsuitable for re-use.
	<p>2.5. State the potential problems with selection and storage of sub-base and base materials, and the appropriate remedial action.</p>
<p>3. Monitor the selection of plant for compaction of sub-base and base material</p>	<p>3.1. Ensure that the compaction plant is:</p> <ul style="list-style-type: none"> a) Suitable to the location and materials b) Suitable to dimensions and access provisions of the site c) In working condition and safe to use.
	<p>3.2. Check for any problems with the selection of plant for the compaction of sub-base and base material and confirm the appropriate action.</p>
<p>4. Understand how to monitor the selection of plant for compaction of sub-base and base material</p>	<p>4.1. Define the factors that influence the selection compaction plant.</p>
	<p>4.2. State how to check that the compaction plant is in working condition and safe to use.</p>
	<p>4.3. State the potential problems with the selection of compaction plant for sub-base and base reinstatement, and the appropriate remedial action.</p>
<p>5. Monitor the construction of sub-base and base materials</p>	<p>5.1. Ensure that the backfill or surround has been adequately prepared to receive subsequent layers.</p>
	<p>5.2. Ensure that the non-bituminous layer is constructed in accordance with:</p> <ul style="list-style-type: none"> a) The specification b) The existing pavement structure and road type.

	<p>5.3. Using the correct measuring equipment check that the layers are constructed:</p> <ul style="list-style-type: none"> a) Using suitable powered equipment and materials b) To the correct degree of compaction level and layer thickness c) To the correct layer thickness and degree of compaction d) Correctly in high risk areas.
	<p>5.4. Check for any problems with the construction of the sub-base and base, and confirm the appropriate action.</p>
<p>6. Understand how to monitor the construction of sub-base and base materials</p>	<p>6.1. State how to identify when the backfill or surround is adequately prepared to receive subsequent layers.</p>
	<p>6.2. State how to interpret the specification for constructing the non-bituminous layer in different pavement structures and road types.</p>
	<p>6.3. Define how to check the construction of layers to ensure the:</p> <ul style="list-style-type: none"> a) Correct use of equipment and materials b) Achieved compaction level c) Correct layer of thickness and degree of compaction d) Correct construction in high risk areas.
	<p>6.4. Define the measuring equipment for checking the construction of the sub-base and base.</p>
	<p>6.5. State the potential problems with the construction of the sub-base and base, and the appropriate remedial action.</p>
<p>7. Monitor site safety</p>	<p>7.1. Ensure that a risk assessment has been carried out.</p>
	<p>7.2. Monitor site operations in accordance with health and safety requirements.</p>
	<p>7.3. Assess site conditions in accordance with the health and safety requirements.</p>
	<p>7.4. Ensure that safety equipment is available and fit for purpose.</p>

	7.5. Ensure that safe working practices are followed in line with health and safety requirements and current relevant specifications.
	7.6. Check for risks to site safety, and confirm the appropriate action required.
	7.7. Ensure that the site is left in a clean and safe condition.
8. Understand how to monitor site safety	8.1. Define the purpose of a site specific risk assessment.
	8.2. State the health and safety requirements for site operations.
	8.3. Define the health and safety requirements for particular site conditions.
	8.4. Define the safety equipment required during site operations and how to ensure that it is fit for purpose.
	8.5. State the safe working practices on-site.
	8.6. Define the potential risks to site safety and the appropriate remedial action.
	8.7. State how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Materials** include:
 - a) Granular Type 1 sub-base material
 - b) Excavated granular sub-base material Class A
 - c) Category 3 cement-bound material (CBM3)
 - d) Foamed concrete.
2. **Specifications and procedures** include:
 - a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
 - b) HSE (2006). *Health and safety in construction HSG150*. Third edition.
 - c) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
3. **Safe working practices** include:
 - a) Safe use of tools and equipment
 - b) Use of PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
 - c) Use of risk assessment methods to identify and control hazards on-site
 - d) Precautions to minimise danger or inconvenience to road users
 - e) Precautions to minimise danger or inconvenience to site personnel
 - f) Precautions to minimise damage to equipment or apparatus.
4. **Compaction plant/powered equipment** includes:
 - a) Vibrotamper
 - b) Vibrating plate
 - c) Vibrating roller
 - d) Percussive rammer
 - e) Hand rammer.
5. **Measuring equipment** may include, as necessary:
 - a) Measuring devices, rule and tape
 - b) Impact soil testing equipment.
6. **Appropriate equipment for supporting and protecting utilities'** apparatus includes:
 - a) Slings
 - b) Ropes
 - c) Props.
7. **Safety equipment** may include, as necessary:
 - a) Adequate range of signing, lighting and guarding equipment (including signs, cones, signals, lamps, footway boards, barriers, portable traffic signals)
 - b) High visibility safety equipment
 - c) Suitable materials to construct ramps.

8. **High risk areas** include:

- a) As a surround to utilities' apparatus
- b) In close proximity to trees
- c) Bad ground conditions
- d) Special engineering difficulty.

9. **Pavement structures and road types** (AC 6.2):

- a) Types 0, 1, 2, 3 and 4 Flexible road construction.

Unit title	Monitoring reinstatement in bituminous materials
Unit reference number	014
Unit aim	
<p>This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to monitor the reinstatement of surface layers in bituminous materials. The Learner will be able to monitor the selection of bituminous materials (hot and cold-lay), monitor the selection of compaction plant for the reinstatement of bituminous materials and monitor the construction of the flexible base (roadbase) and surface layers. The Learner will also be able to monitor site safety throughout sub-base and base reinstatement.</p>	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Monitor the selection of bituminous materials for flexible footway and carriage reinstatement	1.1. Ensure that the bituminous materials are identified and checked against the current specification.
	1.2. Ensure that the quantities of materials selected for use meet reinstatement requirements.
	1.3. Ensure that bituminous materials are stored in line with current specifications and procedures.
	1.4. Check for any problems with the selection and storage of bituminous materials and confirm the appropriate action.
2. Understand how to monitor the selection of bituminous materials for flexible footway and carriageway reinstatement	2.1. Define the range of bituminous materials permitted in the current specification.
	2.2. Define the factors influencing the selection of bituminous materials and the consequences of using unsuitable materials.
	2.3. Calculate quantities of different bituminous materials used in flexible footway and carriageway reinstatement.
	2.4. State the suitable and safe storage procedures for bituminous materials.

	2.5. State the potential problems with selection and storage of bituminous materials, and the appropriate remedial action.
3. Monitor the selection of plant for compaction of bituminous materials	3.1. Ensure that the compaction plant is: a) Suitable to the location and materials b) Suitable to dimensions and access provisions of the site c) In working condition and safe to use.
	3.2. Check for any problems with the selection of plant for the compaction of bituminous material and confirm the appropriate action.
4. Understand how to monitor the selection of plant for the compaction of bituminous materials	4.1. Define the factors that influence the selection of compaction plant.
	4.2. State how to check that the compaction plant is in working condition and safe to use.
	4.3. State the potential problems with the selection of compaction plant for reinstatement in bituminous materials, and the appropriate remedial action.
5. Monitor the construction of flexible base and surface layers in hot and cold-lay bituminous materials	5.1. Ensure that the base and flexible surface layers are constructed in accordance with: a) The specification b) The existing pavement structure and road type.
	5.2. Check using the correct measuring equipment that the layers are constructed: a) Using suitable powered equipment and materials b) To the correct compaction level c) To the correct layer thickness and degree of compaction.
	5.3. Check that the texture depth and finished level of the surface reinstatement are correct.
	5.4. Ensure that the profile of the finished surface is within permitted tolerances.

	5.5. Check for any problems with the construction of the base and flexible surface layers and confirm the appropriate action.
6. Understand how to monitor the construction of flexible, base and surface layers in hot and cold-lay bituminous materials	6.1. State how to interpret the specification for constructing the bituminous flexible, base and surface layers in different pavement and road types.
	6.2. Define the intervention limits permitted in specifications.
	6.3. State how to check construction of the layers to ensure the: a) Correct use of equipment and materials b) Achieved compaction level c) Correct layer thickness, degree of compaction and permitted tolerances.
	6.4. State how to check that the texture depth and finished level of the surface reinstatement are correct.
	6.5. State how to check that the profile of the finished surface is within permitted tolerances.
	6.6. State the potential problems with the construction of the base and surface layers and the appropriate remedial action.
7. Monitor site safety	7.1. Ensure that a risk assessment has been carried out.
	7.2. Monitor site operations in accordance with health and safety requirements.
	7.3. Assess site conditions in accordance with health and safety requirements.
	7.4. Ensure that safety equipment is available and fit for purpose.
	7.5. Ensure that safe working practices are followed in line with health and safety requirements and current relevant specifications.
	7.6. Check for risks to site safety, and confirm the appropriate action required.

	7.7. Ensure that the site is left in a clean and safe condition.
8. Understand how to monitor site safety	8.1. Define the purpose of a site specific risk assessment.
	8.2. State the health and safety requirements for site operations.
	8.3. Define the health and safety requirements for particular site conditions.
	8.4. Define the safety equipment required during site operations and how to ensure that it is fit for purpose.
	8.5. State the safe working practices on-site.
	8.6. Define the potential risks to site safety and the appropriate remedial action.
	8.7. State how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Materials** include:

Materials are identified for constructing base and for constructing an asphalt concrete surface course to BS EN 13108 and PD 6691 in accordance with specifications, to include:

- a) Deferred set mixtures for reinstatement
- b) Permanent cold-lay binder course materials
- c) Edge sealants
- d) Dense binder course materials (20mm nominal stone size), hot rolled asphalt 50/20 binder course
- e) Close graded surface course materials (10mm stone size), hot rolled asphalt 30/14 surface course
- f) Hot rolled asphalt binder and surface course
- g) Close graded surface course materials (10mm stone size)
- h) Asphalt concrete dense surface course
- i) Stone mastic asphalt surface and binder course
- j) Pre-coated 14mm or 20mm chippings
- k) Tack coat.

Note: In small excavations and narrow trenches, the preferred binder course mixture may be replaced by any surface course mixture given in the specification, for the respective road type, provided the same mixture is used as the surface course.

2. **Factors**:

- a) Constituent mix for asphalt concrete
- b) Temperature limits for hot bituminous materials
- c) Polished stone values
- d) Aggregate abrasion values
- e) Penetration grade of binders
- f) Constituent mix for hot dense bituminous materials.

3. **Specifications and procedures** include:

- a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
- b) HSE (2006). *Health and safety in construction HSG150*. Third edition.
- c) Manufacturers' operating procedures for powered tools and plant
- d) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.

4. **Safe working practices** include:
 - a) Safe use of tools and equipment
 - b) Use of appropriate PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
 - c) Use of risk assessment methods to identify and control hazards on-site
 - d) Precautions to minimise danger or inconvenience to road users
 - e) Precautions to minimise danger or inconvenience to site personnel
 - f) Precautions to minimise damage to equipment or apparatus
 - g) Safe working practice for working with molten bitumen
 - h) Personal hygiene measures in connection with skin contamination.

5. **Compaction plant/powered equipment** includes:
 - a) Vibrotamper
 - b) Vibrating plate
 - c) Vibrating roller
 - d) Percussive rammer.

6. **Equipment** may include, as necessary:
 - a) Measuring devices, rule and tape
 - b) Forks
 - c) Rakes
 - d) Shovels
 - e) Tool heater
 - f) Hand tamper.

7. **Safety equipment** may include, as necessary:
 - a) Adequate range of signing, lighting and guarding equipment (including signs, cones, signals, lamps, footway boards, barriers, portable traffic signals)
 - b) High visibility safety equipment
 - c) Suitable materials to construct ramps.

Unit title	Monitoring reinstatement of concrete slabs
Unit reference number	015
Unit aim	
This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to monitor the reinstatement of concrete slabs. The Learner will be able to monitor preparation and construction of concrete slab and will be able to monitor site safety throughout concrete slab reinstatement.	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Monitor the preparation for concrete slab reinstatement	1.1. Ensure that the materials selected for use are identified and checked against the current specification.
	1.2. Ensure that the equipment selected for use is: <ul style="list-style-type: none"> a) Suitable to the site conditions and materials b) Suitable to the prescribed operation c) In Working condition and safe to use.
	1.3. Ensure that sub-base defects are identified and made good using specified materials.
	1.4. Ensure that slab edges are prepared according to the specification to form a support using steel dowel bars.
	1.5. Ensure that the slip membrane is positioned according to the specification.
	1.6. Ensure that slab edge support is provided.
	1.7. Ensure that mesh reinforcement is fixed according to specification.
	1.8. Check for any problems with preparation for concrete slab reinstatement and confirm the appropriate action.
2. Understand how to monitor the preparation for concrete slab reinstatement	2.1. Identify the type of carriageway on which the reinstatement of concrete slabs is carried out.

	2.2. Define the factors that influence the selection of materials and equipment for reinstating concrete slabs.
	2.3. Identify different potential sub-base defects
	2.4. State how to rectify different sub-base defects.
	2.5. Define the procedures for positioning the slip membrane and preparing slab edges.
	2.6. Define the procedures for providing taper edge and dowel bar support.
	2.7. Define the procedures for laying and fixing mesh reinforcement.
	2.8. State the potential problems with the preparation for concrete slab reinstatement and the appropriate remedial action.
3. Monitor the reinstatement of concrete slabs	3.1. Monitor the construction of the concrete slab, checking: <ul style="list-style-type: none"> a) Replacement of missing or damaged joints b) Use of concrete c) Degree of compaction d) Air entrainment.
	3.2. Ensure that the finish is laid to the permitted tolerances and textured to match the existing surface.
	3.3. Check the use of a curing membrane.
	3.4. Check for any problems with the reinstatement of concrete slabs and confirm the appropriate action.
4. Understand how to monitor the reinstatement of concrete slabs	4.1. Define the methods used to construct concrete slabs.
	4.2. State the different joints used in constructing concrete slabs.
	4.3. Define the construction methods for different joints.

	4.4. Define factors that affect the quality of the finished concrete surface.
	4.5. Define the checks and tests to confirm the quality of the concrete slab and finished surface.
	4.6. State the potential problems with the reinstatement of concrete slabs, and the appropriate remedial action.
5. Monitor site safety	5.1. Ensure that a risk assessment has been carried out.
	5.2. Monitor site operations in accordance with health and safety requirements.
	5.3. Assess site conditions in accordance with health and safety requirements.
	5.4. Ensure that safety equipment is available and fit for purpose.
	5.5. Ensure that safe working practices are followed in line with health and safety requirements and current relevant specifications.
	5.6. Check for risks to site safety, and confirm the appropriate action required.
	5.7. Ensure that the site is left in a clean and safe condition.
6. Understand how to monitor site safety	6.1. Define the purpose of a site specific risk assessment.
	6.2. State the health and safety requirements for site operations.
	6.3. Define the health and safety requirements for particular site conditions.
	6.4. Define the safety equipment required during site operations and how to ensure that it is fit for purpose.
	6.5. State the safe working practices on-site.
	6.6. Define the potential risks to site safety and the appropriate remedial action.

	6.7. State how to leave the site in a clean and safe condition.
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Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Equipment** includes:

- a) Hand tools – including, as necessary, square mouth shovel, hand pick, rake, hand rammer, reinforcing bar cutters, wire cutting tools, trowel, hand tamping beam, hard bristle broom
- b) Powered equipment – including vibrotamper, powered concrete cutting equipment, powered concrete drill, powered saw, a proprietary vibrator.

2. **Sub-base material** includes:

- a) Granular sub-base Type 1 material
- b) Pavement quality concrete (as described in specifications and SHW 1000)
- c) Alternative reinstatement materials (ARMs).

3. **Specifications and procedures** include:

- a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
- b) Standards for Highways (2016). *Specification for Highway Works - Series 1000 (Road Pavements – Concrete Materials)*. Volume 1.
- c) HSE (2006). *Health and safety in construction HSG150*. Third edition.
- d) Manufacturers' operating procedures for powered tools and plant
- e) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.

4. **Safe working practices** include:

- a) Safe use of tools and equipment
- b) Use of PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
- c) Use of risk assessment methods to identify and control hazards on-site
- d) Precautions to minimise danger or inconvenience to road users
- e) Precautions to minimise danger or inconvenience to site personnel
- f) Precautions to minimise damage to equipment or apparatus.

5. The **dowel bars** are steel dowel bars of 20mm or 25mm nominal diameter.

6. The **mesh reinforcement** includes standard weights of mesh reinforcement.

7. **Joints** include:

- a) Dowel bars and their assembly
- b) Tie bars
- c) Supporting cradles
- d) Contraction joints
- e) Expansion joints
- f) Warping joints
- g) Construction joints
- h) Prefabricated joint assemblies.

8. The **concrete** includes:
 - a) Class 40 concrete
 - b) Air entrainment additive.
9. **Safety equipment** may include, as necessary:
 - a) Adequate range of signing, lighting and guarding equipment (including signs, cones, signals, lamps, footway boards, barriers, portable traffic signals)
 - b) High visibility safety equipment
 - c) Suitable materials to construct ramps.
10. Types of roads (including Type 0-4 concrete and bituminous overlaid concrete roads and commercial vehicle crossings) AC 2.1.
11. Factors influencing selection of materials and equipment (including the specification options for concrete slabs, quality control of ready mix and site-mixed concrete, the position and spacing of dowel bars and reinforcement, methods of curing concrete and the treatment of commercial vehicle access) AC 2.2.
12. Factors that affect the finished quality of concrete (including visual defects – transverse, longitudinal and random cracking) AC 2.9.
13. Checks to confirm quality of concrete (including profile checks – finished level in respect of surrounding surface and surface texture, concrete cube crushing test, slump test) AC 2.10.

Unit title	Monitoring reinstatement of modular surfaces, concrete footways
Unit reference number	016
Unit aim	
This certificate has been designed to allow the Learner to demonstrate the skills and knowledge required to monitor the reinstatement of modular surfaces and concrete footways. The Learner will be able to monitor the reinstatement of concrete blocks (or similar modules) in carriageways or footways, the reinstatement of paving slabs in footways and the reinstatement of concrete footways. The Learner will also be able to monitor site safety throughout modular surface and concrete footway reinstatement.	

Learning outcomes The Learner will:	Assessment criteria The Learner can:
1. Monitor the reinstatement of concrete blocks in carriageways or footways	1.1. Ensure that the materials selected for use are identified and checked against the current specification.
	1.2. Ensure that the equipment is: <ul style="list-style-type: none"> a) Suitable to the site conditions and materials b) Suitable to the prescribed operation c) In working condition and safe to use.
	1.3. Ensure that sub-base defects are identified and made good using specified materials.
	1.4. Monitor the reinstatement operation including: <ul style="list-style-type: none"> a) The layering of bedding material b) The thickness of the surcharge and compactive effort c) The treatment of joints d) Matching and bonding of modules with existing modules.
	1.5. Assess the finished modular surface to ensure the quality of the reinstatement operation.
	1.6. Check for any problems with the reinstatement of concrete blocks and confirm the appropriate action.
2. Understand how to monitor the reinstatement of concrete blocks in carriageways or footways	2.1. Identify the types of road on which the reinstatement of concrete blocks is carried out.

	2.2. Define the factors that influence the selection of materials and equipment for reinstating concrete blocks.
	2.3. State how to identify different potential sub-base defects.
	2.4. State how to rectify different sub-base defects.
	2.5. Define the procedures and quality checks and tests relating to: a) Laying of bedding materials b) Laying concrete blocks c) Jointing.
	2.6. Define the factors that affect the quality of the finished modular surface.
	2.7. Define the checks required to ensure the quality of the finished modular surface.
	2.8. State the potential problems with reinstatement of concrete blocks and the appropriate remedial actions.
3. Monitor the reinstatement of paving slabs in footways	3.1. Ensure that materials selected for use are identified and checked against the current specification.
	3.2. Ensure that the equipment is: a) Suitable to the site conditions and materials b) Suitable to the prescribed operation c) In working condition and safe to use.
	3.3. Ensure that sub-base defects are identified and made good using specified materials.
	3.4. Monitor the reinstatement operations including: a) The laying of bedding material b) The thickness of the surcharge and compactive effort c) The treatment of joints d) Matching and bonding of modules with existing modules.

	3.5. Assess the finished modular surface to ensure the quality of the reinstatement operation.
	3.6. Check for any problems with the reinstatement of paving slabs and confirm the appropriate action.
4. Understand how to monitor the reinstatement of paving slabs in footways	4.1. Identify the types of road on which the reinstatement of paving slabs is carried out.
	4.2. Define the factors that influence the selection of materials and equipment for reinstating paving slabs.
	4.3. State how to identify different potential sub-base defects.
	4.4. State how to rectify different sub-base defects.
	4.5. Define the procedures and quality checks and tests relating to: a) Laying bedding materials b) Laying paving slabs c) Jointing.
	4.6. Define the factors that affect the quality of the finished modular surface.
	4.7. Define the checks required to ensure the quality of the finished modular surface.
	4.8. State potential problems with reinstatement of paving slabs and the appropriate remedial action.
5. Monitor the reinstatement of concrete footways	5.1. Ensure that the materials selected for use are identified and checked against the current specification.
	5.2. Ensure that the equipment is: a) Suitable to the site conditions and materials b) Suitable to the prescribed operation c) In working condition and safe to use.

	5.3. Ensure that sub-base defects are identified and made good using specified materials.
	5.4. Monitor the reinstatement operation including: a) Laying the concrete b) Compaction operations c) Concrete curing method.
	5.5. Assess the finished surface to ensure the quality of the reinstatement operation.
	5.6. Check for any problems with the reinstatement of concrete footways and confirm the appropriate action.
6. Understand how to monitor the reinstatement of concrete footways	6.1. Identify the types of footway on which concrete reinstatement is carried out.
	6.2. Define the factors that influence the selection of materials and equipment for reinstating concrete footways.
	6.3. State how to identify different potential sub-base defects.
	6.4. State how to rectify different sub-base defects.
	6.5. Define the procedures and quality checks and tests relating to: a) Laying concrete b) Compacting concrete c) Curing concrete d) Affect the quality of the finished surface.
	6.6. Define the checks required to ensure the quality of the finished surface.
	6.7. State the potential problems with reinstatement of concrete footways and the appropriate remedial action.
7. Monitor site safety	7.1. Ensure that a risk assessment has been carried out.
	7.2. Monitor site operations in accordance with health and safety requirements.

	7.3. Assess site conditions in accordance with health and safety requirements.
	7.4. Ensure that safety equipment is available and fit for purpose.
	7.5. Ensure that safe working practices are followed in line with health and safety requirements and current relevant specifications.
	7.6. Check for risks to site safety, and confirm the appropriate required.
	7.7. Ensure that the site is left in a clean and safe condition.
8. Understand how to monitor site safety	8.1. Define the purpose of a site specific risk assessment.
	8.2. State the health and safety requirements for site operations.
	8.3. Define the health and safety requirements for particular site conditions.
	8.4. Define the safety equipment required during site operations and how to ensure that it is fit for purpose.
	8.5. State the safe working practices on-site.
	8.6. Define the potential risks to site safety and the appropriate remedial action.
	8.7. State how to leave the site in a clean and safe condition.

Evidence Requirements/Scope

Some terms, used in the assessment criteria, cover a range of situations, as follows:

1. **Materials** include:
 - a) Appropriate sub-base materials for making good defects
 - b) Bedding and grouting materials for use in modular reinstatement (including sand and mortar)
 - c) Pre-cast concrete blocks (or similar modules) to match the existing paving for reinstatement
 - d) Natural or pre-cast paving slabs to match the existing surface for reinstatement
 - e) Class 25/30 concrete for concrete footway reinstatement
 - f) Slip membrane (for concrete footway reinstatement)
 - g) Curing material (for concrete footway reinstatement).
2. **Specifications and procedures** include:
 - a) Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
 - b) BS 7533 Series
 - c) HSE (2006). *Health and safety in construction HSG150*. Third edition.
 - d) Manufacturers' operating procedures for powered tools and plant
 - e) Application Guide 26
 - f) Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
3. **Safe working practices** include:
 - a) Safe use of tools and equipment
 - b) Use of PPE, including, as necessary: high visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection visor or goggles, dust mask
 - c) Use of risk assessment methods to identify and control hazards on-site
 - d) Precautions to minimise danger or inconvenience to road users
 - e) Precautions to minimise danger or inconvenience to site personnel
 - f) Precautions to minimise damage to equipment or apparatus.
4. **Equipment** includes:
 - a) Hand tools – including, as necessary, square and round mouth shovels, lifting and clearing tools (hand pick, crowbar, bolster, club hammer, wire brush, hard bristle broom, rake), hand rammer, straight edge (or suitably cut) timber, trowel, textured roller.
 - b) Powered equipment – including, as necessary, concrete cutting equipment, concrete saw, vibrotamper, vibrating plate.
5. **Safety equipment** may include, as necessary:
 - a) Adequate range of signing, lighting and guarding equipment (including signs, cones, signals, lamps, footway boards, barriers, portable traffic signals)
 - b) High visibility safety equipment
 - c) Suitable materials to construct ramps.

6. **Types of roads** include (AC 2.1 and AC 4.1):
 - a) Modular surfaced carriageways and footways
 - b) High duty footways
 - c) High amenity footways.

7. **Factors that affect selection of materials and equipment** include (AC 2.2):
 - a) Requirement to match materials with existing modular surface
 - b) Suitable bedding materials
 - c) Suitable grouting materials.

8. **Factors that affect modular surface** include (AC 2.7):
 - a) Moisture content of bedding sand
 - b) Thickness of surcharge and compactive effort
 - c) Treatment of joints
 - d) Matching of and bonding with existing modules.

9. **Quality checks for finished surface** include (AC 2.8 and AC 4.7):
 - a) Visual inspection – surface defects, edge depression, surface crowning, surface regularity, jointing
 - b) Measurement of surface profile.

10. **Factors that affect selection of materials** include (AC 4.2):
 - a) Matching and bonding modules with existing modules
 - b) Suitable bedding materials
 - c) Suitable grouting materials
 - d) Replacement of damaged modules
 - e) Treatment of joints.

11. **Types of footway** include (AC 6.1):
 - a) Concrete surfaced footways
 - b) High duty footways
 - c) High amenity footways.

12. **Procedures for reinstating compacting concrete** include (quality control of site-mixed and ready-mixed concrete) (AC 6.4)

13. **Quality checks for finished concrete surface** include (AC 6.6):
 - a) Visual inspection for transverse, longitudinal and random cracking
 - b) Profile checks on finished level in respect of surrounding surface and surface fixture.

6 How is this Qualification Delivered?

In order to deliver this qualification, you will need to be a Lantra-approved Provider. Details of how to become an approved Provider are available by contacting our sales team via sales@lantra.co.uk.

Approved Providers should contact our quality and standards team to register for delivery of the qualification. It is important that Providers are approved on a per-qualification basis as we are required to ensure that we have a quality assurance strategy in place and because it ensures that Providers receive the support they need. Upon scheme approval, you will receive the relevant documentation for delivery.

Learners must be registered via QuartzWeb. Details of this process are available in the QuartzWeb User Guide. Providers must submit the required information for Learner registration. Learners should be registered for the qualification once they have been enrolled with the Provider. Failure to register Learners may prevent assessments from taking place. Sanctions may be imposed on Providers if Learners are not registered before the assessment takes place.

Learners will complete the necessary elements of the assessment and be assessed by the internal Assessor. The Provider will compile and send the Learner Achievement Record and Cohort Assessment Summary to Lantra for external quality assurance.

Providers are not required to send Learner evidence to Lantra; this should be retained by the Provider. However, Lantra reserves the right to request to see Learner work as part of the quality assurance process, so this should be retained and filed so that it can be easily located.

Where a Provider is running a qualification well, Lantra may award Direct Claims Status (DCS), which enables certificates to be claimed in advance of external quality assurance taking place. Further details are available in section 6.4.5.

6.1 Delivery in the UK

The specification for this qualification is approved for delivery in the United Kingdom.

In Wales and Northern Ireland, each certificate comprises a number of units. Learners pass in whichever combination of units is required to obtain the desired certificate. Certain units are, in effect, compulsory because they are common to all certificates. In England and Scotland, all of the units have been converted into individual certificates. As a result, the units that were previously common to all certificates – the ‘key units’ in Wales and Northern Ireland – have become key certificates in England and Scotland. Otherwise, there is little difference – assessing someone for, say, the *Excavation in the highway* **unit** is no different from assessing someone for the *Excavation in the highway* **certificate**.

In Wales and Northern Ireland, the units for operatives are:

1. Location and avoidance of underground apparatus
2. Signing, lighting and guarding
3. Excavation in the highway
4. Reinstatement and compaction of backfill materials
5. Reinstatement of sub-base and base in non-bituminous materials
6. Reinstatement in cold-lay bituminous materials
7. Reinstatement in hot-lay bituminous materials
8. Reinstatement of concrete slabs
9. Reinstatement of modular surfaces and concrete footways.

And the certificates for operatives are:

1. Excavation in the highways – requires units 1, 2 and 3
2. Excavation, backfilling and reinstatement of construction layers with a cold-lay bituminous surface – requires units 1, 2, 3, 4, 5 and 6
3. Reinstatement of construction layers in hot-lay and cold-lay bituminous materials - requires Units 1, 2, 6 and 7
4. Reinstatement of concrete slabs - requires Units 1, 2 and 8
5. Reinstatement of modular surfaces and concrete footways - requires Units 1, 2 and 9

Similarly, the units for supervisors are:

1. Location and avoidance of underground apparatus
10. Monitoring signing, lighting and guarding
11. Monitoring excavation in the highway
12. Monitoring reinstatement and compaction of backfill materials
13. Monitoring reinstatement of sub-base and base in non-bituminous materials
14. Monitoring reinstatement in bituminous materials
15. Monitoring reinstatement of concrete slabs
16. Reinstatement of modular surfaces and concrete footways.

And the certificates for supervisors are:

1. Monitoring excavation in the highway – requires Units 1, 10 and 11
2. Monitoring excavation, backfilling and reinstatement of construction layers with bituminous materials – requires Units 1, 10, 11, 12, 13 and 14
3. Monitoring reinstatement of construction layers in bituminous materials – requires Units 1, 10 and 14
4. Monitoring reinstatement of concrete slabs – requires Units 1, 10 and 15
5. Monitoring reinstatement of modular surfaces and concrete footways – requires Units 1, 10 and 16.

In Wales and Northern Ireland, candidates can simply choose to undertake certificates in the type of work they intend to do because the 'key units' (Location and avoidance of underground apparatus, Signing, lighting and guarding, Monitoring signing, lighting and guarding) are embedded in the appropriate certificates.

Operatives and supervisors in Wales and Northern Ireland can renew certificates simply by applying to SWQR to re-register them for a further five years. However, they must do this within three months of certificate expiry. If left any later than this, operatives and supervisors must undergo the initial assessments again.

In England and Scotland, there are no units, just certificates. The certificates for operatives are:

- LA Location and avoidance of underground apparatus
- O1 Signing, lighting and guarding
- O2 Excavation in the highway (Excavation in the road in Scotland)
- O3 Reinstatement and compaction of backfill materials
- O4 Reinstatement of sub-base and base in non-bituminous materials
- O5 Reinstatement in cold-lay bituminous materials
- O6 Reinstatement in hot-lay bituminous materials
- O7 Reinstatement of concrete slabs
- O8 Reinstatement of modular surfaces and concrete footways.

And the certificates for supervisors are:

- LA Location and avoidance of underground apparatus
- S1 Monitoring signing, lighting and guarding
- S2 Monitoring excavation in the highway
- S3 Monitoring reinstatement and compaction of backfill materials
- S4 Monitoring reinstatement of sub-base and base in non-bituminous materials
- S5 Monitoring reinstatement in bituminous materials
- S6 Monitoring reinstatement of concrete slabs
- S7 Reinstatement of modular surfaces and concrete footways.

In England and Scotland, these units have been disentangled from the excavation and reinstatement activities to become key certificates. Operatives must hold key certificates LA and O1 for any other certificate from O2 to O8 to be valid. Similarly, supervisors must hold key certificates LA and S1 for any other certificate from S2 to S7 to be valid. One advantage of this system is that certificates LA, O1 and S1 can be used on their own for non-street works activities.

When the qualification is no longer deemed suitable, for example if technology has moved on and working practices are no longer relevant, Lantra will advise Providers of a qualification end date. The end date marks the end of registrations. Any Learners registered before this date will be allowed time to complete the qualification. For this qualification, that period will be six months.

6.2 Who can Deliver this Qualification?

Only approved Lantra Providers can deliver this qualification. For information on becoming approved please contact Lantra via sales@lantra.co.uk or call on 02476 69 69 96.

6.3 Provider Resources

This section contains information about physical resources to which Providers must have access to deliver the street works qualification.

For the facilitation of multiple-choice question papers, Providers must ensure the following:

- A suitable, quiet room must be provided for the assessment. This should include an ambient temperature and adequate lighting
- The test room should include a clock which can be seen clearly by all Learners
- Desks/tables must be provided that allow Learners to work comfortably
- Learners are provided with the permitted reference material as per the guidance below
- Learners are provided with calculators where appropriate
- Learners must be seated sufficiently far apart to ensure that they cannot see each other's work. Lantra recommends a distance of no less than one metre each side
- Providers may not display, prior to or during the test, any reference material that relates to the content of the assessment, or that may assist the Learner during the assessment
- Providers must validate the identity of Learners with photographic identification
- All Learners must be seated at the examination start time.

Where Learners are required to use equipment, apparatus or materials during practical assessments, real equipment, apparatus and materials must be used, which are appropriate for the unit being assessed and which comply with the requirements of current codes of practice.

The specific unit resource requirements are listed below and should be checked to ensure Learners have access to the right equipment to meet the assessment requirements.

Note: Learners are required to have access to and wear suitable and correct PPE for the task(s) being assessed, including, as necessary: high-visibility jacket or waistcoat, hard hat, ear defenders, gloves, protective footwear, waterproof clothing, eye protection, visor or goggles and dust mask.

6.3.1 Operative Unit Resource Requirements

When assessing Learners for all operative units, please note that the following conditions apply:

1. The location used must be large enough to allow each Learner to carry out the required tasks in the minimum area specified in each certificate's guidance for any excavation or reinstatement operation
2. Providers must ensure Learner numbers comply with the following Assessor/Learner Ratios.

001 – Location and avoidance of underground apparatus

1. A suitable location where the Learner can demonstrate competence locating and tracing a range of services (at least three for a distance of 10m), either on the highway/road or an area that closely resembles one
2. Service plans to include gas, water, electricity and telecommunications
3. A range of services commonly found during excavation work on the highway/road to identify both damaged and undamaged (at least 16 should be used). Services to use are listed in the assessment checklist

4. A site that will allow a minimum of three traceable underground services for at least 10m is recommended
5. Cable locator (signal generator optional) and service plans to include telecommunication, gas, water and electric cables
6. All personal protective equipment relevant to the operations being carried out
7. Documents as detailed 6.3.3.

Note: Assessors must identify details of any damaged apparatus prior to assessments taking place, so that they can confirm the accuracy of the Learners' observations. (This is particularly important if assessments are taking place in a live site situation, where the circumstances will vary between assessments.

002/010 – Signing, lighting and guarding

1. The site used for assessment may be one of any of the following:
 - a) A road with unpredictable traffic
 - b) A road where traffic is predictable
 - c) A simulated road where there is no traffic and road markings which could be marked out in an area other than a road (car park, depot open space, etc.).
2. For a simulated road (c) above further evidence from the workplace must be provided which demonstrates that the full scope of the assessment performance criteria has been met from a real road situation (Workplace Evidence). This must be assessed prior to certification and subject to verification.
3. A full set of temporary signing and guarding for works on a footway.
4. Temporary traffic signals, including Stop/Go boards
5. A selection of unsuitable and damaged traffic management equipment (signs, cones, barriers) for Learners to determine suitability for use and selection should be provided
6. All personal protective equipment relevant to the operations being carried out
7. Documents as detailed 6.3.3.

003 – Excavation in the highway

1. The activities are undertaken either on-site or at a realistic simulated site. Where the site is simulated, there should be a sufficient amount of signing and guarding in place to ascertain work areas
2. Assessments are not to be undertaken on excavations where trench support is needed due to ground conditions
3. The Learner will need to carry out an excavation, on a Type 4 carriageway. The area to be excavated must be a minimum of 0.7m² and 650mm deep and must contain a minimum of one utility service. The area should be marked out to show the position of services and the extent of the excavation. Where certificates covering reinstatement are to be assessed the minimum dimensions of 0.7m² and 650mm depth is required for each operative
4. Incorporating a granular base and sub-base
5. Where the Learner is going to be assessed for certificates covering reinstatement of backfill, the excavated depth should be at least 650mm to allow for a reasonable backfill layer
6. A range of materials (A, B, C, D and E) to identify for re-use or disposal. A minimum of eight are to be used to make an informed assessment decision
7. A suitable exercise/simulation to demonstrate knowledge of carriageway and footway types and their construction
8. All personal protective equipment relevant to the operations being carried out

9. Documents as detailed 6.3.3.

004 – Reinstatement and compaction of backfill materials

1. The activities are undertaken either on-site or at a realistic simulated site. Where the site is simulated, there should be a sufficient amount of signing and guarding in place to ascertain work areas
2. Assessments are not to be undertaken on excavations where trench support is needed due to ground conditions
3. A minimum trench dimension of 0.7m² and 650mm depth for each operative undertaking assessment. Where more than one operative is undertaking assessment, each should reinstate separate trenches to prevent cross-contamination of evidence
4. It is common for the Learner to use the excavation for the reinstatement in a Type 4 Flexible with a granular base (roadbase)
5. A range of materials (A, B, C, D and E) to identify for re-use or disposal. A minimum of eight should be used to make an informed assessment decision
6. Incorporate a minimum of one service commonly found within a highway/road
7. Appropriate hand tools and compaction equipment to select and use. All personal protective equipment relevant to the operations being carried out
8. Documents as detailed 6.3.3.

005 – Reinstatement of sub-base and base in non-bituminous materials

1. The activities are undertaken either on-site or at a realistic simulated site. Where the site is simulated, there should be a sufficient amount of signing and guarding in place to ascertain work areas
2. Assessments are not to be undertaken on excavations where trench support is needed due to ground conditions
3. A minimum trench dimension of 0.7m² and 430mm depth for each operative undertaking assessment. Where more than one operative is undertaking assessment, each should reinstate separate trenches to prevent cross-contamination of evidence
4. It is common for the Learner to use the excavation for the reinstatement in a Type 4 Flexible with a granular base (roadbase)
5. A range of materials (A, B, C, D and E) to identify for re-use or disposal. A minimum of eight are to be used to make an informed assessment decision
6. Appropriate hand tools and compaction equipment to select and use
7. All personal protective equipment relevant to the operations being carried out
8. Documents as detailed 6.3.3.

006 – Reinstatement in cold lay bituminous materials

1. The activities are undertaken either on-site or at a realistic simulated site. Where the site is simulated, there should be a sufficient amount of signing and guarding in place to ascertain work areas
2. A minimum trench dimension of 1.2m² (not including iron work) and 100mm depth for each operative undertaking assessment. Where more than one operative is undertaking assessment, each should reinstate separate trenches to prevent cross-contamination of evidence
3. It is common for the Learner to use the trench for and the reinstatement to be in a Type 4 Flexible Carriageway
4. Appropriate hand tools and compaction equipment to select and use
5. The reinstatement of the surface course should be carried out with the specified compaction equipment, i.e. single drum roller 600kg/m minimum weight or plate compactor 1,400kg/m²
6. Highway/road ironwork to set line and level

7. All personal protective equipment relevant to the operations being carried out
8. Documents as detailed 6.3.3.

007 – Reinstatement in hot lay bituminous materials

1. The activities are undertaken either on-site or at a realistic simulated site. Where the site is simulated, there should be a sufficient amount of signing and guarding in place to ascertain work areas
2. A Type 4 Flexible Carriageway with a minimum trench dimension of 1.2m² (not including iron work) and 100mm depth for each operative undertaking assessment. Where more than one operative is undertaking assessment, each should reinstate separate trenches to prevent cross-contamination of evidence
3. Appropriate hand tools, tool heater, temperature measuring and compaction equipment to select and use
4. The reinstatement of the surface course should be carried out with the specified compaction equipment, i.e. single drum roller 600Kg/m minimum weight or plate compactor 1,400kg/m²
5. A tool heater, thermometer, tack coat and edge joint sealant should also be provided
6. All personal protective equipment relevant to the operations being carried out
7. Documents as detailed 6.3.3.

008 – Reinstatement of concrete slabs

1. The activities are undertaken either on-site or at a realistic simulated site. Where the site is simulated, there should be a sufficient amount of signing and guarding in place to ascertain work areas
2. A minimum trench dimension of 1.0m² and 200mm depth in a rigid road should be provided for each operative undertaking assessment and a quantity of Granular Sub-base Type 1 (GSB Type 1) to make good the sub-base. Where more than one operative is undertaking assessment, each should reinstate separate trenches to prevent cross-contamination of evidence
3. Class 40 concrete must be used, in line with the specification requirement (a lime mix concrete may be used as a substitute)
4. Sufficient materials to reinstate the slab using taper edge support or dowel bars
5. A range of hand tools and compaction equipment should be available to the Learner as stated. This to include a vibrating poker to compact the concrete, dowel bars (25mm), reinforcement mesh, tie wires and suitable drilling and cutting equipment, polythene sheeting and mixer if not using ready mixed concrete and slump testing equipment
6. All personal protective equipment relevant to the operations being carried out
7. Documents as detailed 6.3.3.

009 – Reinstatement of modular surfaces, concrete footways

1. The activities are undertaken either on-site or at a realistic simulated site. Where the site is simulated, there should be a sufficient amount of signing and guarding in place to ascertain work areas
2. A minimum trench dimension of 1.5m² for modular reinstatement; 1m² for concrete; and a minimum of six concrete paving slabs or 1.5m² minimum for each operative undertaking assessment. Where more than one operative is undertaking assessment, each should reinstate separate trenches to prevent cross-contamination of evidence
3. Class 25/30 concrete must be used, in line with the specification requirement (a lime mix concrete may be used as a substitute)
4. A range of hand tools, mixing and compaction equipment should be available to the Learner as stated in the Standards. This is to include bedding material, concrete, kiln dried sand, GSB Type 1 and slump testing equipment

5. Sufficient quantities of materials for each Learner
6. All personal protective equipment relevant to the operations being carried out
7. Documents as detailed 6.3.3.

6.3.2 Supervisor Units Resource Requirements

When assessing Learners for all supervisor units, please note that the following conditions apply:

1. **While being assessed undertaking monitoring activities, the supervisor will not confer with the operative or other supervisors under assessment.** The Assessor should control this throughout the assessment
2. **Physical resource requirements.** When observing operatives undertaking activities, the supervisor must be able to see them working in a typical site situation (either real or simulated). Real tools, equipment and materials must be used that are in accordance with the current Codes of Practice. It is expected that the physical resources observed will match those used for the equivalent operative certificates, although monitoring activities undertaken by Learners, could result in a variety of evidence obtained from more than one site situation
3. **Poor practices and remedial action.** If, during the course of the practical assessment, no incidents of poor practices take place, the Learner will be unable to make recommendations for remedial action. In this case, the Assessor must build in the opportunity for the Learner to provide the evidence required at the appropriate time (such as, for example, using further performance evidence, or questioning)
4. **If good practice is** observed by the supervisor it should be recorded, this provides the Assessor with the opportunity to assess the Learners full understanding of the certificate performance criteria
5. **Where competence is not demonstrated, the Assessor will recommend an action plan for the Learner.** This should identify any gaps in their evidence and identify further training or experience required prior to reassessment.

6.3.3 Required Publications

It is the Provider's responsibility to ensure that full, current and clean copies of the listed reference material are made available to each Learner. Please refer to the table below for the specific reference material required for each unit. Providers must ensure they have copies of specifications and codes of practice currently in use in England, Wales, Northern Ireland or Scotland. This will largely depend on the location of the assessment Provider.

1. Department for Transport (2019). *Specification for the Reinstatement of Openings in Highways*. Fourth edition.
2. Department for Transport (2013). *Safety at Street Works and Road Works - A Code of Practice*. Second impression.
3. Department for Transport (2016). *An Introduction to the Use of Portable Vehicular Signals*. Third edition.
4. HSE (2014). *Avoiding danger from underground services HSG47*. Third edition.
5. HSE (2006). *Health and safety in construction HSG150*. Third edition.
6. Street Works UK (2018). *Volume 1: Street Works UK Guidelines on the Positioning and Colour Coding of Underground Utilities' Apparatus*. Issue 5.
7. Malcolm Copson, Peter Kendrick and Steve Beresford (2019). *Roadwork: Theory and Practice*. Sixth edition.
8. Standards for Highways (2016). *Specification for Highway Works - Series 1000 (Road Pavements – Concrete Materials)*. Volume 1.

9. Interpave (2012). *Guide to the properties, design, construction, reinstatement and maintenance of concrete block pavements*. Edition 2.*

*Interpave has given permission for these documents to be used.

The following table gives details of which documents are required to support each unit.

Unit title	Reference documents required
001 – Location and avoidance of underground apparatus	1, 2, 4, 5, 6
002 – Signing, lighting and guarding	2, 3
003 – Excavation in the highway	1, 2, 4, 5, 6
004 – Reinstatement and compaction of backfill materials	1, 2, 4, 5, 6
005 – Reinstatement of sub-base and base in non-bituminous materials	1, 2, 4, 5
006 – Reinstatement in cold lay bituminous materials	1, 2
007 – Reinstatement in hot lay bituminous materials	1, 2
008 – Reinstatement of concrete slabs	1, 2, 8
009 – Reinstatement of modular surfaces, concrete footways	1, 2, 9
010 – Monitoring signing, lighting and guarding	2, 3
011 – Monitoring excavation in the highway	1, 2, 4, 5, 6
012 – Monitoring reinstatement and compaction of backfill materials	1, 2, 4, 5, 6
013 – Monitoring reinstatement of sub-base and base in non-bituminous materials	1, 2, 4, 5
014 – Monitoring reinstatement in bituminous materials	1, 2
015 – Monitoring reinstatement of concrete slabs	1, 2, 8
016 – Monitoring reinstatement of modular surfaces, concrete footways	1, 2, 9

6.4 Quality Assurance and Certification

6.4.1 Quality Assurance of Assessment Decisions

This qualification is internally assessed and externally quality assured. This means that Providers will need to appoint qualification Assessors to assess Learners and complete assessment paperwork. Where you have more than one Assessor you will need to carry out internal standardisation of each Assessor to ensure that they can apply the assessment criteria consistently and accurately. An internal quality assurer (IQA) will need to be appointed, and they will need to sample assessment decisions across the Assessors. It is also a requirement that regular standardisation activity is carried out with Assessors. The IQA will be responsible for putting this programme into place.

An external quality assurer (EQA) will be appointed to the Provider and this person will be responsible for sample checking Assessors' assessment recommendations. The EQA will produce a sampling strategy which will determine the number of portfolios to be seen. This strategy involves the consideration of a number of factors, such as, size of cohort and number of Assessors. The EQA will produce a sampling record detailing which work they will want to see. It is important to note that although the EQA will view only a sample of work, they may wish to widen the sample. Therefore, all Learner work should be available for inspection.

Lantra operates both on-site and postal external quality assurance for this qualification. You may not, therefore, always have a visit from an EQA, but a sample may be requested for despatch via post. The principle of quality assurance is the same either way. The EQA will review a sample of work and make a recommendation on the assessment decisions of the cohort as a whole.

Your EQA will contact you to make the necessary arrangements regarding the visit (date, venue etc.) or request the despatch of a sample of work.

Where the EQA is in agreement this decision will be communicated to Lantra and certificate claims will be processed. Where the EQA is not in agreement the reasons will be communicated to the Provider with supportive feedback to help with future assessment decisions. This may result in the need for Learners to retake the assessment.

Occasionally as part of Lantra's ongoing quality assurance strategy an EQA may be accompanied by either Lantra staff or another EQA. This is to ensure that the EQA is following the correct processes.

Where DCS is in place Providers will be able to claim certificates before quality assurance has taken place.

Lantra will support Providers when requirements are not met by developing action plans, providing recommendations and, where required, implementing sanctions.

6.4.2 Claiming Certification

Among the assessment documentation Providers need to submit is a completed a Certificate Claim Form which allows Lantra to process the certificates following quality assurance approval.

Once a Learner has completed the assessment requirements and quality assurance has taken place certificates will be issued by Lantra for Providers to distribute to individual Learners.

Where DCS is in place, the certificates will be issued prior to quality assurance taking place.

6.4.3 Street Works Qualification Register (SWQR)

Those who have gained street works qualifications and who wish to work as qualified operatives or supervisors must be registered on the SWQR. Once registered, a street works card will be issued to the individual.

The SWQR holds details of all Providers approved by the street works awarding organisations. When a new Provider is approved, Lantra gives its name and contact details to the SWQR, which in turn contacts the Provider with more information regarding the registration process.

Lantra regularly notifies the SWQR of the unit and full award certificates that it has issued, but it is the responsibility of individuals or their organisations to apply for their registration card. Applications and all enquiries relating to the SWQR, its administration and the issuing of street works cards should be made to:

Street Works Qualifications Register
The Optima Building
58 Robertson Street
Glasgow
G2 8DQ
Tel: 0845 270 2720
Fax: 0845 213 5000
Email: swqr@sqa.org.uk
Website: www.swqr.org.uk

Street works cards are currently valid for five years, after which re-registration is required. To continue acting as a qualified operative or supervisor, individuals must ensure that their registration status at the SWQR remains current. The re-registration process and requirements are subject to review, but the Register contains details of the current process.

Note: When a certificate approaches expiry, the Learner will be able to renew it at any time in its last year without losing the unexpired portion. The Learner can also renew a certificate when it has more than a year left to go. In this case, the renewed certificate will last for six years from the date of renewal.

6.4.4 Replacement Certification

If a Learner loses the original certificate or Skills ID Card Lantra can issue a replacement. The Learner will need to provide proof of identity (for example passport or driving licence) and the details of the Provider they were registered with. Lantra will check all claims for replacement certificates against the original Certificate Claim Form. The Provider may be contacted for authentication. The certificate will be marked as a replacement. A fee is payable for replacement certificates and Skills ID Cards. Please contact Lantra for the current fee.

6.4.5 Direct Claims Status

Direct Claims Status (DCS) enables Providers to claim certification directly before external quality assurance has taken place. A claim for DCS can only be made after an external quality assurer (EQA) has conducted a visit, which may be approximately six months following approval to deliver the qualification and enough Learners have been progressed by the Provider.

Where an EQA decides a programme is running successfully and the Provider has effective internal controls, recommendation may be made to award the Provider DCS. Where this is granted the Provider must retain all assessment evidence until the EQA has quality assured the work as meeting national standards. DCS will be withdrawn if access is not given to completed Learners' evidence where certificates have already been claimed.

Providers must operate a system which ensures all Assessors assess to the required standard. The internal quality assurer (IQA) will be required to observe each Assessor, retaining evidence of observations which must be made available during EQA visits. The EQA may wish to sample the process and observe Assessors. If the EQA is not confident about the way in which the Provider is operating they may recommend the suspension or withdrawal of DCS.

DCS does not mean that all claims are certificated without further quality assurance checks. Quality assurance of claims will still take place, and where this suggests that certificates have been incorrectly issued may lead to them being revoked. Providers are required to make all reasonable effort to recover certificates which have been revoked.

Should a Provider be imposed with a Level 2 sanction, DCS will automatically be removed. Further information on sanctions can be found in the Provider Handbook.

6.5 Enquiries About Results and Appeals

Lantra has an Enquiries about Results Policy and Appeals Procedure which can be used when a Learner or Provider has reason to believe there has been an error in either the administrative processes leading to an incorrect qualification award or there has been an issue in the assessment of the Learner. Fees payable for enquiries about results will be refunded in full if the enquiry is upheld or if a Learner's results are changed as a result of an enquiry.

Appeals can be made following the outcome of an enquiry about results if the Learner/Provider remains unhappy with the outcome or has further grounds to query the decision. Please note that appeals will not be accepted before a paid result enquiry has been conducted.

Providers must ensure that Learner consent is obtained before an enquiry about a result is requested. Learners must be informed that assessment outcomes can change both positively and negatively.

Please refer to the Provider Handbook for further details.

6.6 Malpractice and Maladministration

Where malpractice is suspected, especially where there is doubt on the integrity of the assessment process, Lantra will immediately suspend further certification claims whilst an investigation is carried out. The regulatory authorities will be notified of any investigations and their outcome.

The claimant will be required to provide information about the suspected malpractice and the circumstances surrounding the matter. Malpractice, if found, may result in sanctions being imposed on the Provider, certificates being revoked or even Providers being barred from Lantra membership and reported to regulatory authorities.

Maladministration is linked to malpractice and can result in a malpractice investigation being launched. Maladministration could impact on the credibility of the assessment taking place or the outcomes achieved; for example, in the event of a failure to investigate suspected malpractice when asked to do so by Lantra.

Please refer to the Lantra Malpractice and Maladministration Policy for further details.

6.7 Recognition of Prior Learning

Recognition of prior learning is not a recognised method of assessment for the reassessed street works units and qualification.

6.8 Safeguarding — Young People and Vulnerable Adults

This qualification can be offered to Learners in the 16-19 age group, as well as Learners aged 19+. The Health and Safety at Work Act 1974 requires employers to ensure the health, safety and welfare at work of their employees and Providers to safeguard Learners. Young people under the age of 18 and vulnerable adults can be exposed to risk when using work equipment due to immaturity, lack of experience or lack of awareness of existing or potential risks. Therefore, young people and vulnerable adults may need closer supervision.

For more information about young people at work, see Management of Health and Safety at Work Regulations 1999.

6.9 Additional Requirements and Reasonable Adjustments

Providers are expected to make appropriate arrangements, including reasonable adjustments. These are detailed in the Equality and Diversity Policy within the Provider Handbook, to ensure that Learners with additional needs can access assessment wherever possible. The Equality and Diversity Policy covers alternative assessment arrangements which can be made for Learners.

Reasonable adjustments must not, however, result in a change to the learning outcomes and assessment criteria. For example, within this qualification Learners must understand product information, which includes being able to interpret signage on-site written in English.

A Provider must apply to Lantra for reasonable adjustments using the **Reasonable Adjustments Request Form**. Lantra recommends reasonable adjustment requests be submitted no later than six weeks prior to the assessment taking place, to allow a decision on their suitability to be made before the assessment. However, Lantra recognises that this may not always be possible, and we will do our best to process requests received after this point.

Please note that no reasonable adjustment (other than those on the specified list) should be implemented without the prior approval of Lantra. Where reasonable adjustments appear on the specified list these should be noted on the invigilation report or the assessment report form.

7 What Does a Provider Need to Do?

7.1 Management Support

Experience has shown that qualification programmes run more effectively when given support by senior management. This can be achieved by appointing a person from the senior management team or a designated Qualification Manager and ensuring they are given the authority to monitor the quality management systems for the programme and to implement any required changes. This role is separate from the required role of an IQA.

Management support can be demonstrated by ensuring that appropriate team members are allocated to the programme and given sufficient time and resources to carry out their roles effectively.

7.2 Provider Records

Providers are required to retain Learner records, which include the details listed below. Providers may already have their own systems which can be used to store records. If the necessary information is accessible and conforms to the requirements below, then no further records need to be created. Lantra does not prescribe the format in which records are kept.

Provider records must include:

- Data about individual Learners, including any reasonable adjustments
- Assessment and action plans
- Learner registration
- Learner induction plan
- Achievement of units
- Feedback given to Learners by Assessors
- Evidence sampled by the IQA
- Feedback given to Assessors by the IQA
- Actions plans provided by the EQA.

All records must be stored securely to avoid being falsified or fraudulent claims being made. All assessment records must be retained by the Provider for at least **three years** after the Learner has completed the assessment. If the programme is subject to an EQA visit/ approval sign off, then the records should be retained for three years after this date. It is the responsibility of the Provider to ensure that data is cleansed at the appropriate time.

There is no prescribed format for these records and Providers may wish to incorporate them into documentation they already maintain within their own organisation. If the Provider already works to quality management systems such as the Scottish Quality Management System (SQMS), the ISO 9001 series or is required to maintain records for government-funded training schemes, that documentation will almost certainly provide an adequate basis for Provider records.

Providers may also need to adhere to separate requirements, where appropriate, with regard to the retention of records such as funding applications. Please refer to the specific requirements of the funding agency.

7.3 Support for Learners

Learners will need to follow an induction programme when enrolled on the qualification. This should be designed around a particular element or unit of the qualification so that they become familiar with the way the qualification operates.

Throughout the programme Tutors and/or Instructors should aim to provide feedback to Learners on how they are progressing through the qualification to ensure that on the day of the assessment they are ready for the requirements of the question paper and the practical assessment. Feedback should be positive, constructive and used for future planning.

Some Providers will have staff working in education support; in others, Assessors may offer this support. It is important for each Learner to have appropriate guidance and be directed towards additional information as required. Guidance on career opportunities may also be appropriate.

Learners with particular characteristics may need additional support from the Provider/Instructor. Refer to Lantra's Equality and Diversity Policy for further information relating to reasonable adjustments/special considerations. Learners with certain protected characteristics should not be discriminated against or prohibited from assessment where adjustments can be made to the assessment evidence requirements which would allow them to demonstrate competence or knowledge in different ways.

Learners must be informed when they have been registered for a qualification. It is also a regulatory requirement that Lantra be informed if a Learner later withdraws from a qualification. Providers must also ensure that Learners are informed when they have been withdrawn from a qualification for any reason and retain evidence of this.

Learners will not be recognised by Lantra until they have been registered and Lantra will have no obligation to the Learners if there is a problem with them completing the qualification, such as in the case that the Provider ceases operations.

If for any reason a Provider is not intending to renew their membership whilst they still have uncertified Learners registered on a qualification, regulatory requirements stipulate that Learner interests must be maintained. The Provider may choose to transfer Learners to another awarding organisation or the Provider will still be required to complete the assessment of Learners with Lantra and pay any fees due for quality assurance or certification.

8 Administration and Other Important Information

8.1 Administration Process for Registration and Certification

The Quartzweb User Guide contains instructions on how to register Learners.

Learners may transfer registration from one unit/qualification to another provided they are both offered by Lantra. This will incur an administration fee. If the registration fee for the new qualification is higher than for the previous one, Providers will be invoiced for the difference. No refunds will be made if the registration fee for the new qualification is lower. Learners transferring to a different Provider must re-register with the new Provider. Lantra may need to charge the Learner's new Provider an administration fee.

Learners must be informed when they have been registered for a qualification.

8.1.1 Registering the Learner

Providers **must** register any planned assessment activity for the units within this qualification a minimum of ten working days prior to the assessment taking place.

Learners **must** be registered against the qualification and respective unit(s) within five working days of undertaking a planned assessment. Please refer to the QuartzWeb User Guide for details on how to register Learners.

Each Learner must give their surname/family name, first name, date of birth and postcode. The date of birth is important to distinguish between Learners with the same name. Data on gender, ethnic origin and whether any reasonable adjustments have been requested whilst not mandatory are beneficial so that achievements can be monitored for equal opportunities purposes and to ensure fair access to training and qualifications is achieved.

8.1.2 Certificate Claims

Certificates can only be claimed for Learners who are registered on Quartzweb. All certificate claims are checked against Provider approval records and Learner registration records (unless DCS is in place). Certificates will not be issued to Learners who are not registered before any assessment takes place.

The Learner name will appear on the certificate in the same way as it is entered on Quartzweb.

Providers must issue the certificate to the Learner as soon as is practically possible, it is not permissible to withhold the distribution of the certificate where there is a dispute over any fees payable.

8.2 Assessment Strategy

Providers and Assessors (and IQAs where appropriate) must ensure that they are familiar with the specifications and the requirements of the qualification.

Unit and qualification assessment requirements set out the scope of evidence required in terms of equipment, services, statutory regulations and industry standards and systems.

Methods of assessment:

- Summative assessment through multiple-choice questions
- Observation of practical activities
- Verbal questioning.

Assessment requirements:

- For practical observations, competence must be demonstrated and evidenced
- The Assessor may decide that more observations are required to ensure that all assessment criteria have been met
- Assessors must be capable of identifying when competence has been demonstrated by the Learner based on their own professional judgement
- The evidence is sufficient when the Assessor judges the requirements of the qualification have been met and competence has been demonstrated by the Learner
- Although there are no formal limits set on the time taken to complete the qualification or the number of assessment opportunities provided, Providers may wish to set guidelines for the length of time or amount of tuition offered to Learners for financial or logistical reasons, taking into account the stated key safety-critical and technically critical aspects of the assessment. It is estimated that the practical assessment will take approximately two hours, depending on the Learner.

This qualification is assessed by a multiple-choice question paper. Currently, this may be delivered using our online assessment option, or by traditional paper-based assessment. The use of online examinations will become mandatory and the timescale for introduction will be advised by HAUC (UK) twelve months in advance of the date that all Providers will need to comply by. Each question shows four possible answers (lettered 'A', 'B', 'C', 'D'). Learners must select one answer per question. Instructions on how to amend answers will be contained in the assessment paper instructions.

All questions have one correct answer and the assessment paper will ensure that each learning outcome of the unit is assessed allowing Learners to achieve all the learning outcomes of the unit.

Each assessment paper includes 20 questions. The pass mark for each assessment paper is 80%. The examination allows Learners to use the appropriate documents listed in 6.3.3. The length of time permitted to complete the assessment paper is 45 minutes.

Examinations will be marked internally, and the Learner informed of the result on the same day. Re-sits will be permitted where time allows at the discretion of the approved Provider but using a different paper to the one previously sat.

Further guidance to support the delivery of the multiple-choice assessment of this qualification is available to download from the 'my profile' area of the Lantra Awards website.

Information regarding test regulations is provided in Annex 1 of the Provider Handbook.
Access to assessment:

- Learners should not be put forward for an assessment until they are deemed ready to be assessed
- This can be demonstrated through an evaluation of the Learner's previous training and experience
- This underpins the assumption that the Learner has sufficient technical expertise, knowledge, skill and maturity to meet the assessment requirements
- Key considerations for evaluation of the Learner's previous training and experience include:
 - Health and safety considerations
 - Knowledge of New Roads and Street Works legislation.

8.3 Assessment Guidance

8.3.1 Operative Units Assessment Guidance

The assessment of street works units 001-009 is based on observing the Learner's performance and questioning the Learner to ensure that they can meet the knowledge requirements of the awards. It may therefore be necessary for Learners to undertake additional learning prior to assessment. Communications in English whilst on-site is important for Health and Safety reasons. For this reason, the use of an interpreter is not permitted, and documents used in assessment are only in English.

Assessors need to ensure that they assess each Learner's individual competence against all the requirements of each unit.

Learner observations may be conducted either in a simulated situation at an approved location or in the Learner's workplace.

The observation must be carried out by a qualified Assessor, who will observe the Learner carrying out the tasks specified in the unit of competence. The following conditions must be met for all observations:

- a) The assessment must take place at a site with physical characteristics that conform to the definition of 'street' in Section 48 or 'road' in Section 107 of the New Roads and Street Works Act 1991
- b) The resource requirements listed for each unit are met
- c) The Learner uses equipment and materials that comply with the requirements of the relevant codes of practice.

Learners must be directly observed carrying out the tasks listed in each unit. Evidence from the workplace is only used to support the Signing, lighting and guarding certificate where the site used does not resemble a real road situation.

8.3.2 Supervisor Units Assessment Guidance

The assessment of supervisor units is by performance evidence provided by the Learner, supplemented by evidence of underpinning knowledge.

The assessment documentation provided requires the Learner to provide details of the monitoring activities that they have undertaken and to record the results of their monitoring.

The Learner must therefore have the opportunity to watch street works operations being carried out and must be able to demonstrate that they can meet the requirements of the monitoring unit(s) that they are undertaking.

Observations can take place either in an off-site, simulated situation (e.g. at an assessment Provider's approved centre) or on-site, in a workplace situation. The observation must be carried out by a qualified and occupationally experienced Assessor who will observe the Learner carrying out the tasks specified in the unit of competence.

It is common for Learners taking the supervisor units to provide their performance evidence by monitoring the practical activities carried out by other Learners who are being assessed for the related operative units.

Assessors need to ensure that they assess each Learner's individual competence against all the requirements of each unit, and that there is sufficient opportunity for the supervisor to make a decision on the activities observed.

Where a Learner provides performance evidence from a real site situation, the Assessor may not have the opportunity to be present during the monitoring. More information may be required to enable the Assessor to determine the validity of the Learner's evidence against the performance criteria. This can include:

- Reports of completed jobs that reflect the site situation
- Interviews with the Learner's supervisor or team leader
- The Learner's own report of the job, including details of the site situation
- Documented observation reports showing how the Learner has met the requirements of the unit being assessed (please note that observation reports of this kind must be provided by a qualified street works supervisor or Assessor, as outlined in the units of competence).

8.3.3 Signing, Lighting and Guarding (002 and 010)

For safety reasons, observed assessments of Learners undertaking signing, lighting and guarding activities must take place at an assessment Provider's centre, or a location linked to a Provider, that has been approved by the Provider's external verifier prior to use for assessment. The site used for assessment must be a real road with unpredictable traffic flows.

Providers must notify Lantra in advance if it wishes to carry out assessments at any other site(s) than those that have previously been advised and approved by Lantra.

8.3.4 Time Allocated for Assessments

There is no time limit specified for assessments, because Learners work at different rates. However, it is expected that any particular task will be completed within a period of time that is acceptable in normal working practice. Assessors should therefore be able to judge an approximate time for each task, but additional time will be needed for oral questioning and for completion of the relevant assessment documentation by both the Learner and their Assessor.

8.3.5 Questioning

Learners must demonstrate that they can cover all the knowledge-based learning outcomes in the units of competence that they undertake. Questions have been provided for each unit of competence, and Assessors must make use of these when carrying out assessments.

Questioning can be carried out either orally, by means of a written question paper or a combination of the two. Please see below for more information on the use of the questions.

8.3.6 The Use of Simulated Evidence

Learner observations may be conducted either in a simulated situation at an approved location, or in the Learner's workplace.

The observation must be carried out by a qualified Assessor, who will observe the Learner carrying out the tasks specified in the unit of competence. The following conditions must be met for all observations:

- a) The assessment must take place at a site with physical characteristics that conform to the definition of 'street' in Section 48 or 'road' in Section 107 of the New Roads and Street Works Act 1991
- b) The resource requirements listed for each unit are met
- c) The Learner uses equipment and materials that comply with the requirements of the relevant codes of practice.

The use of a simulated site situation at the assessment Provider's approved centre has the advantage of allowing an Assessor to observe Learners monitoring operatives at work while combining the practical assessment with the assessment of other evidence produced for the supervisor units (including the production of any other workplace evidence and the assessment of underpinning knowledge).

8.3.7 Using Video Evidence

It is not permissible to use video evidence for assessment purposes.

8.3.8 Learner to Assessor Ratios

For Signing, lighting and guarding a maximum of two Learners per Assessor may be assessed on the practical elements at any one time.

For Location and avoidance of underground services, with a minimum of two pipe and cable locators, a maximum of two Learners per Assessor may be assessed on the practical elements at any one time.

For all excavation and reinstatement certificates a maximum of six Learners per Assessor may be assessed on the practical elements at any one time.

Providers can have more Learners on any assessment event providing the Assessor/Learner ratios are maintained.

External Quality Assurers will monitor the ratio of Learners to Assessors over a period of time, to ensure that there are sufficient Assessors available at each assessment Provider's centre to assess the numbers of Learners in accordance with the ratios above.

No maximum Learner to Invigilator ratio is set for multiple choice assessments for initial assessment and reassessment, although the examination facility must be suitable and comply with the Awarding Organisation and Joint Council for Qualifications policies. Please note: Assessors who are newly qualified or in training should only assess 50% of the stated Learner numbers until such time as they are deemed experienced by the Provider's internal verifier.

8.3.9 Learners Undertaking Operative and Supervisor Units

Where a Learner is to be assessed for both operative and supervisor units, adequate time must be allocated to complete all assessments in full. There must be no cross-contamination of evidence between Learners. This means that Learners must carry out all of the tasks specified for any unit they undertake and must each provide evidence to show that they meet the requirements of the standards for each unit.

8.4 Online Assessment and Paper-Based Assessment

This qualification is assessed by a multiple-choice question paper. Currently, this may be delivered using our online assessment option, or by traditional paper-based assessment. The use of online examinations will become mandatory and the timescale for introduction will be advised by HAUC (UK) 12 months in advance of the date that all Providers will need to comply by. Providers wishing to offer an online assessment will need to ensure that they have sufficient resources (computers, network connections, seating arrangements) to ensure that assessments can be taken in line with Lantra's test regulations.

Full guidance on using the online assessment platform is available in the 'Lantra XAMS Provider Guide', produced in conjunction with our technical partner Coelrind.

Providers will need to determine whether they wish to register cohorts for online or paper-based assessment when the order is booked via Quartzweb. For paper-based assessments Lantra would recommend that all registrations for tests are submitted **at least** five working days before the assessment. This is to allow a named response sheet to be produced for each Learner. Online assessment can be registered on the day, however, Lantra would still recommend that orders are placed in advance.

Lantra understands that in some instances the names of the entire cohort will not be known in advance. Lantra will support orders received at shorter notice for paper-based assessment, however, Providers will need to ensure that Learner names are entered on to Quartzweb on the day of the assessment. Failure to do so will result in a delay in processing the certificates.

Providers using online assessment will receive an attendance register and log on details for each Learner via Quartzweb. Learners will log on to the assessment portal using these details and complete their assessment. Instructions on taking the assessment are provided for Learners when they log on.

Examinations taken using XAMS will be marked automatically by the system.

Information regarding test regulations is provided in Annex 1 of the Provider Handbook.

8.5 Feedback, Compliments and Complaints

Lantra recognises that from time to time Providers, Learners, Assessors and other personnel may have reason to provide feedback on a process, or have grounds for a complaint. We would also welcome compliments when aspects of our courses have been well received so that we can seek to implement best practice across our suite of products. The Lantra Feedback, Compliments and Complaints Procedure is published on the Lantra Awards' website.

Appendix 1 – Glossary of Terms

Knowledge	Factual information that can be recalled as required. Individual can (for example) 'identify' and/or 'describe' key information relevant to the subject area.
Understanding	The application and extension of knowledge allowing organised thought, the generation of original ideas and critical thinking. Individual can (for example) 'explain', 'analyse' and/or 'evaluate'.
Skill	The application of knowledge and/or understanding in a practical context demonstrating practical competency. Individual can (for example) 'operate', 'use' and/or 'carry out'.
Learning outcome	How the Learner will be changed by the learning/assessment process. That which the Learner will, due to learning experiences, newly know, understand or be able to do.
Assessment criteria	Discrete criteria which holistically deliver on the promised objective of the qualification and which must all be evidenced to a unified (and/or graded) standard.
Qualification objective	A succinct summation of the overarching development of the Learner in terms of tangible work or further developmental opportunities available as a result of achieving this qualification.
Qualification aim	A succinct summation of why this qualification is of value to the Learner (without reference to assessment).
Transferable	Knowledge, understanding or skills which can be applied beyond the context in which they were taught to benefit the Learner in different job roles, industries, contexts and/or personal situations.
Assessment guidance	Guidance used to advise Providers on a general level of expectation rather than to prescribe a definitive list of evidence.
Delivery guidance	Guidance which, without reference to assessment, illustrates opportunities for evidence which might: <ul style="list-style-type: none"> • Be naturally generated through the learning process • Offer innovative examples of delivery gathered through Provider/Learner consultation • Minimise the burden of assessment on Providers and Learners.
Arrangements for reasonable adjustments	Adjustments made to an assessment for a qualification so as to enable a Learner with additional requirements to demonstrate his/her attainment to the level required.

<p>Arrangements for special consideration</p>	<p>Special consideration might be given to a Learner who has temporarily experienced:</p> <ul style="list-style-type: none"> • An illness or injury • Some other event outside of the Learner's control which has had a material effect on the Learner's ability to take an assessment or demonstrate his/her attainment.
<p>Recognition of prior learning</p>	<p>A method of assessment that considers whether a Learner can demonstrate that they meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning.</p>