

Reassessed Streetworks Excavation and Reinstatement (6167-03 to -18)

May 2024 Version 1.3

Qualification Handbook

Qualification at a glance

Subject area	Utilities
City & Guilds number	6167
Age group approved	16+
Entry requirements	None
Assessment	Multiple choice knowledge test
Grading	Pass/Fail
Approvals	Automatic approval available from 6157 and 6167-02
Support materials	Centre handbook
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

Title	City & Guilds number	Qualification number
Reassessed Streetworks Excavation and Reinstatement	6167-03 to -18	N/A

Version and date	Change detail	Section
1.3 May 2024	Structure of qualification amended from one programme of study (6167-02) to 16 separate programmes of study (6167-03 to -18)	Front cover, Qualification at a glance, Structure
	Added sections <i>quality assurance</i> and <i>access arrangements and reasonable adjustments</i>	2
	Added sections <i>Inclusion and diversity</i> and <i>Sustainability</i>	3
	Removed detail about paper-based examinations	4
	Updated <i>sources of general information</i> pages Minor formatting updates	Appendix 1 Throughout
1.2 June 2021	Amendment to Unit 523 LO3	Units
1.1 March 2020	Formatting amends, ROC table clarification	Throughout
1.0 February 2020	Scheme number and unit amends	Throughout

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1 Introduction

To re-register with the Street Works Qualification Register (SWQR) and be issued with a new SWQR card the individual must achieve one or more of the reassessed qualifications listed below. They can only achieve the necessary qualifications via an approved centre, who will in turn register the results with the appropriate awarding body - either CABWI, City & Guilds or SQA. The awarding body will then issue the appropriate reassessed certificate(s). The qualifications of the operatives and supervisors must then be registered with the Street Works Qualifications Register in order for a new SWQR card to be issued for the individual to continue to act as a qualified operative or supervisor.

Structure

The sixteen single unit competence qualifications are listed in the table below, together with the unit required to achieve them.

Nine units are applicable to operatives and eight to supervisors. One of these units (unit 517) applies to both operatives and supervisors.

Streetworks Excavation and Reinstatement				
HAUC ref	City & Guilds qualification number	City & Guilds unit number	Unit title	Operative or Supervisor
LA	6167-03	517	Reassessed location and avoidance of underground apparatus	Operative and Supervisor
O1	6167-04	518	Reassessed signing, lighting and guarding	Operative
O2	6167-05	519	Reassessed excavation in the highway	Operative
O3	6167-06	520	Reassessed reinstatement and compaction of backfill materials	Operative
O4	6167-07	521	Reassessed reinstatement of sub-base and base in non-bituminous materials	Operative
O5	6167-08	522	Reassessed reinstatement in cold-lay bituminous materials	Operative
O6	6167-09	523	Reassessed reinstatement in hot-lay bituminous materials	Operative
O7	6167-10	524	Reassessed reinstatement of concrete slabs	Operative
O8	6167-11	525	Reassessed reinstatement of modular surfaces and concrete footways	Operative
S1	6167-12	526	Reassessed monitoring signing, lighting and guarding	Supervisor
S2	6167-13	527	Reassessed monitoring excavation in the highway	Supervisor
S3	6167-14	528	Reassessed monitoring reinstatement and compaction of backfill materials	Supervisor
S4	6167-15	529	Reassessed monitoring reinstatement of sub-base and base in non-bituminous materials	Supervisor
S5	6167-16	530	Reassessed monitoring reinstatement in bituminous materials	Supervisor
S6	6167-17	531	Reassessed monitoring reinstatement of concrete slabs	Supervisor
S7	6167-18	532	Reassessed monitoring reinstatement of modular surfaces and concrete footways	Supervisor

2 Centre requirements

Approval

If your Centre is approved to offer 6157-02 or 6167-02 Reassessed Streetworks Excavation and Reinstatement qualifications, you will be automatically approved to offer the new 6167-03 to 18 Reassessed Streetworks Excavation and Reinstatement qualifications.

To offer these qualifications, new centres will need to gain both centre and qualification approval. Please refer to the document **Centre Approval Process: Quality Assurance Standards** for further information.

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualifications before designing a course programme.

Resource requirements

Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be occupationally competent or technically knowledgeable in the area[s] for which they are delivering training and/or have experience of providing training. This knowledge must be to the same level as the training being delivered
- have recent relevant experience in the specific area they will be assessing
- have credible experience of providing training.

For full resource requirements please see section 5 'Roles and responsibilities' within the HAUC assessment strategy, which is available for download from www.cityandguilds.com/HAUCassessmentstrategy

Centre staff may undertake more than one role, eg tutor and assessor or internal verifier, but cannot internally verify their own assessments.

Continuing professional development (CPD)

Centres are expected to support their staff in ensuring that their knowledge remains current of the occupational area and of best practice in delivery, mentoring, training, assessment and quality assurance, and that it takes account of any national or legislative developments.

Quality assurance

Approved centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications. Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and City & Guilds is responsible for external quality assurance. For more information on both CASS and City and Guilds Quality Assurance processes visit: the [What is CASS?](#) and [Quality Assurance Standards](#) documents on the City & Guilds website.

Standards and rigorous quality assurance are maintained by the use of:

- Internal quality assurance
- City & Guilds external quality assurance.

In order to carry out the quality assurance role, Internal Quality Assurers must

- have appropriate teaching and vocational knowledge and expertise

- have experience in quality management/internal quality assurance
- hold or be working towards an appropriate teaching/training/assessing qualification
- be familiar with the occupation and technical content covered within the qualification.

External quality assurance for the qualification will be provided by City & Guilds EQA process. EQAs are appointed by City & Guilds to approve centres, and to monitor the assessment and internal quality assurance carried out by centres. External quality assurance is carried out to ensure that assessment is valid and reliable, and that there is good assessment practice in centres.

The role of the EQA is to:

- provide advice and support to centre staff
- ensure the quality and consistency of assessments and marking/grading within and between centres by the use of systematic sampling
- provide feedback to centres and to City & Guilds.

For full quality assurance requirements please see section 5 'Roles and responsibilities' within the HAUC assessment strategy, which is available for download from www.cityandguilds.com/HAUCassessmentstrategy

Learner entry requirements

City & Guilds does not set entry requirements for these qualifications. However, centres must ensure that candidates have the potential and opportunity to gain the qualification(s) successfully.

Age restrictions

City & Guilds cannot accept any registrations for candidates under 16 as these qualifications are not approved for under 16s.

Access arrangements and reasonable adjustments

City & Guilds has considered the design of these qualifications and its assessments in order to best support accessibility and inclusion for all learners. We understand however that individuals have diverse learning needs and may require reasonable adjustments to fully participate. Reasonable adjustments, such as additional time or alternative formats, may be provided to accommodate learners with disabilities and support fair access to assessment.

Access arrangements are adjustments that allow candidates with disabilities, special educational needs, and temporary injuries to access the assessment and demonstrate their skills and knowledge without changing the demands of the assessment. These arrangements must be made before assessment takes place.

The Equality Act 2010 requires City & Guilds to make reasonable adjustments where a disabled person would be at a substantial disadvantage in undertaking an assessment.

It is the responsibility of the centre to ensure at the start of a programme of learning that candidates will be able to access the requirements of the qualification.

Please refer to the JCQ access arrangements and reasonable adjustments and Access arrangements - when and how applications need to be made to City & Guilds for more information. Both are available on the City & Guilds website:

<http://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library/policies-and-procedures/access-arrangements-reasonable-adjustments>

3 Delivering the qualifications

Initial assessment and induction

An initial assessment of each candidate should be made before the start of their programme to identify:

- if the candidate has any specific training needs,
- support and guidance, they may need when working towards their qualification(s).
- any content they have already completed, or credit they have accumulated which is relevant to the qualification.

We recommend that centres provide an induction programme, so the candidate fully understands the requirements of the qualifications, their responsibilities as a candidate, and the responsibilities of the centre. This information can be recorded on a learning contract.

Inclusion and diversity

City & Guilds is committed to improving inclusion and diversity within the way we work and how we deliver our purpose which is to help people and organisations develop the skills they need for growth.

More information and guidance to support centres in supporting inclusion and diversity through the delivery of City & Guilds qualifications can be found here:

[Inclusion and diversity | City & Guilds \(cityandguilds.com\)](https://www.cityandguilds.com)

Sustainability

City & Guilds are committed to net zero. Our ambition is to reduce our carbon emissions by at least 50% before 2030 and develop environmentally responsible operations to achieve net zero by 2040 or sooner if we can. City & Guilds is committed to supporting qualifications that support our customers to consider sustainability and their environmental footprint.

More information and guidance to support centres in developing sustainable practices through the delivery of City & Guilds qualifications can be found here:

[Our Pathway to Net Zero | City & Guilds \(cityandguilds.com\)](https://www.cityandguilds.com)

Centres should consider their own carbon footprint when delivering this qualification and consider reasonable and practical ways of delivering this qualification with sustainability in mind. This could include:

- reviewing purchasing and procurement processes (such as buying in bulk to reduce the amount of travel time and energy, considering and investing in the use of components that can be reused, instead of the use of disposable or single use consumables)
- reusing components wherever possible
- waste procedures (ensuring that waste is minimised, recycling of components is in place wherever possible)
- minimising water use and considering options for reuse/salvage as part of plumbing activities wherever possible.

Support materials

The following resources are available for these qualifications:

Description	How to access
Qualification handbook	www.cityandguilds.com

4 Assessment

Summary of assessment methods

Unit title	Assessment method	Where to obtain assessment materials
Reassessed location and avoidance of underground apparatus	Online knowledge test (e-volve test component 517)	Online via e-volve
Reassessed signing, lighting and guarding	Online knowledge test (e-volve test component 518)	Online via e-volve
Reassessed excavation in the highway	Online knowledge test (e-volve test component 519)	Online via e-volve
Reassessed reinstatement and compaction of backfill materials	Online knowledge test (e-volve test component 520)	Online via e-volve
Reassessed reinstatement of sub-base and base in non-bituminous materials	Online knowledge test (e-volve test component 521)	Online via e-volve
Reassessed reinstatement in cold-lay bituminous materials	Online knowledge test (e-volve test component 522)	Online via e-volve
Reassessed reinstatement in hot-lay bituminous materials	Online knowledge test (e-volve test component 523)	Online via e-volve
Reassessed reinstatement of concrete slabs	Online knowledge test (e-volve test component 524)	Online via e-volve
Reassessed reinstatement of modular surfaces and concrete footways	Online knowledge test (e-volve test component 525)	Online via e-volve
Reassessed monitoring signing, lighting and guarding	Online knowledge test (e-volve test component 526)	Online via e-volve
Reassessed monitoring excavation in the highway	Online knowledge test (e-volve test component 527)	Online via e-volve
Reassessed monitoring reinstatement and compaction of backfill materials	Online knowledge test (e-volve test component 528)	Online via e-volve
Reassessed monitoring reinstatement of sub-base and base in non-bituminous materials	Online knowledge test (e-volve test component 529)	Online via e-volve
Reassessed monitoring reinstatement in bituminous materials	Online knowledge test (e-volve test component 530)	Online via e-volve

Unit title	Assessment method	Where to obtain assessment materials
Reassessed monitoring reinstatement of concrete slabs	Online knowledge test (e-volve test component 531)	Online via e-volve
Reassessed monitoring reinstatement of modular surfaces and concrete footways	Online knowledge test (e-volve test component 532)	Online via e-volve

Knowledge assessments

Knowledge assessments for all units are available online via e-volve. All knowledge assessments are 20 question multiple-choice examinations with a time limit of 45 minutes. The pass mark for all examinations is set at 80%. The examinations are 'open book' and allow candidates to use appropriate documents (as detailed in the HAUC assessment strategy).

Re-sits will be permitted where time allows at the discretion of the approved centre. Candidates can be informed of a pass or fail on the same day. Examinations may only take place at locations approved by City & Guilds as an Examination Centre.

Access to the reassessed examinations will require candidates to show their current Streetworks Registration Card and one other means of photo identity such as a current driving licence or passport to the invigilator prior to the examination.

Assessment strategy

The full HAUC streetworks assessment strategy document is available to download from www.cityandguilds.com/HAUCAssessmentstrategy. This includes full details of assessment provision including detail on assessment timescales, permitted resources, and candidate assessor ratios.

5 Units

Structure of units

All units for the City & Guilds Streetworks Excavation and Reinstatement can be found in this document.

The units in these qualifications are written in a standard format and comprise the following:

- City & Guilds reference number
- Title
- Aim
- Learning Outcomes - made up of a number of assessment criteria
- Evidence requirements/scope
- Assessment requirements

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 001, 6156-21 Unit 201, 6156-23 Unit 221, 6157-02 Unit 001 or 6167-01 Unit 101 Location and Avoidance of Underground Apparatus and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to interpret information and plans showing the location of underground apparatus
- 2 Understand how to identify utilities apparatus and highways services encountered during excavation
- 3 Understand the hazards and risks associated with underground utilities apparatus and highways services
- 4 Understand how to use pipe and cable location equipment

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice (Edition 2)
- Specifications for the Reinstatement of Opening in Highways Approved Code of Practice (Edition 3)
- National Joint Utilities Group guidance on the Positioning and Colour Coding of Underground Utilities Apparatus.

Learning Outcome 1: Understand how to interpret information and plans showing the location of underground apparatus
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Assessment criteria:

- | |
|--|
| <ol style="list-style-type: none"> 1.1 define the criteria for checking that plans are current 1.2 identify the types of symbols and legends that are used on plans 1.3 identify how different types of services are shown on plans 1.4 define the importance of marking the site clearly prior to excavation. |
|--|

Learning Outcome 2: Understand how to identify utilities apparatus and highways services encountered during excavation

Assessment criteria:

- | |
|--|
| <ol style="list-style-type: none"> 2.1 identify the different types of underground utilities apparatus and highways services 2.2 identify the distinguishing characteristics of underground utilities apparatus and highways services. |
|--|

Learning Outcome 3: Understand the hazards and risks associated with underground utilities apparatus and highways services

Assessment criteria:

- 3.1 define the information recorded within a site-specific risk assessment in relation to the location and avoidance of underground utilities apparatus and highways services
- 3.2 identify damage to underground utilities apparatus and highways services
- 3.3 state the potential consequences of damaging underground utilities apparatus and highways services
- 3.4 define the control measures used to reduce the likelihood and severity of consequences resulting from the damage of underground utilities apparatus and highways services
- 3.5 state the purpose of contingency plans in relation to damaged underground utilities apparatus and highways services.

Learning Outcome 4: Understand how to use of pipe and cable location equipment

Assessment criteria:

- 4.1 define the operational limitations of different pipe and cable location equipment
- 4.2 state how to select equipment that is fit for purpose
- 4.3 define the procedure for notifying the relevant authority of discrepancies between search results and site plans
- 4.4 state the procedure to follow where underground utilities apparatus and highways services cannot be found using pipe and cable location equipment.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 002, 6156-21 Unit 202, 6156-23 Unit 222, 6157-02 Unit 002 or 6167-01 Unit 102 Signing, Lighting and Guarding and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to survey the work site
- 2 Understand how to protect pedestrians, vehicular traffic and site personnel
- 3 Understand how to provide portable traffic signals, Stop/Go and priority traffic control

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- An Introduction to the Use of Portable Temporary Traffic Lights.

Learning Outcome 1: Understand how to survey the work site
Assessment criteria:

- 1.1 state the purpose of work site surveys and site-specific risk assessments in relation to the installation and removal of signing, lighting and guarding
- 1.2 state the potential requirements of the location and its users when selecting and installing signing, lighting and guarding
- 1.3 define the factors that influence provision for:
 - (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
- 1.4 state how to minimise disruption to and ensure the safety of vehicular traffic
- 1.5 identify the circumstances in which mobile and short duration works would be applicable.

Learning Outcome 2: Understand how to protect pedestrians, vehicular traffic and site personnel
Assessment criteria:

- 2.1 define the personal protective equipment required for signing, lighting and guarding activities
- 2.2 state how to control the movement of pedestrians, vehicles and plant within the confines of the working area
- 2.3 define the distances and dimensions to accommodate advance signing

- 2.4 define the distances and dimensions to accommodate pedestrian walkways, traffic lanes, safety zones and portable pedestrian crossing facilities
- 2.5 state the requirements for the installation and use of warning lights
- 2.6 define how signs, barriers, footway boards, ramps and road plates are securely installed
- 2.7 state how to check that equipment is fit for purpose.
- 2.8 specify the sequences for installing, positioning and removing equipment.

Learning Outcome 3: Understand how to provide portable traffic signals, Stop/Go and priority traffic control

Assessment criteria:

- 3.1 define the checks carried out to ensure that signals are operating correctly
- 3.2 state how the site location requirements affect the positioning of signals
- 3.3 specify the correct sequence for installing, positioning, dismantling and removing signals
- 3.4 define how the traffic conditions affect the adjustment of signal controls and timings
- 3.5 specify the appropriate site conditions for using:
 - (a) Stop/Go boards
 - (b) priority traffic control
 - (c) give and take
 - (d) stop work signs.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 003, 6156-21 Unit 203, 6156-23 Unit 223, 6157-02 Unit 003 or 6167-01 Unit 103 Excavation in the Highway and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to identify different types of footway and carriageway
- 2 Understand how to excavate in the highway
- 3 Understand how to support and protect underground apparatus during excavation in the highway
- 4 Understand how to identify, select and store excavated materials for re-use as backfill

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- The Specifications for the Reinstatement of Openings in Highways
- National Joint Utilities Group publications.

Learning Outcome 1: Understand how to identify different types of footway and carriageway

Assessment criteria:

- 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.

Learning Outcome 2: Understand how to excavate in the highway

Assessment criteria:

- 2.1 identify the appropriate tools and equipment used to safely excavate in the highway
- 2.2 define the requirements that equipment must meet to be considered fit for purpose
- 2.3 define the appropriate specifications that should be referred to when excavating in the highway
- 2.4 define the appropriate methods used to identify areas of high risk relating to excavation activities

- 2.5 identify the relevant control measures that should be in place when excavating in the highway
- 2.6 define the appropriate precautions to take to when excavating in areas of high risk
- 2.7 define the characteristics of excavation and trench categories in accordance with the appropriate specifications
- 2.8 identify the appropriate measures that should be taken to ensure that excavations can accommodate materials and equipment for compaction and reinstatement.

Learning Outcome 3: Understand how to support and protect underground apparatus during excavation in the highway

Assessment criteria:

- 3.1 state the potential consequences of damaging different types of utilities apparatus
- 3.2 identify the steps that should be taken when reporting damage to utilities apparatus
- 3.3 state the appropriate methods to be used to safely support and protect exposed utilities apparatus
- 3.4 define the circumstances in which trench support systems would be required, and where to find the guidelines for their installation and safe use.

Learning Outcome 4: Understand how to identify, select and store excavated materials for re-use as backfill

Assessment criteria:

- 4.1 define how excavated materials are classified and considered suitable or unsuitable for re-use as backfill material
- 4.2 identify the circumstances in which excavated materials can be re-used
- 4.3 define how to protect excavated re-usable materials from:
 - (a) contamination
 - (b) loss of fines
 - (c) excessive drying or wetting
- 4.4 state the requirements that excavated chalk should comply with for it to be considered suitable for re-use backfill material
- 4.5 define how to safely store and dispose of materials that are unsuitable for re-use
- 4.6 state the consequences of using unsuitable material for backfill or sub-base.

Unit 520

Reassessed reinstatement and compaction of backfill materials

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 004, 6156-21 Unit 204, 6156-23 Unit 224, 6157-02 Unit 004 or 6167-01 Unit 104 Reinstatement and Compaction of Backfill Material and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to identify different types of footway and carriageway
- 2 Understand how to select materials for backfill
- 3 Understand how to backfill an excavation
- 4 Understand how to dispose of surplus materials

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- Specifications for the Reinstatement of Openings in Highways.

Learning Outcome 1: Understand how to identify different types of footway and carriageway

Assessment criteria:

- 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.

Learning Outcome 2: Understand how to select materials for backfill

Assessment criteria:

- 2.1 identify the different types of excavated materials and their suitability for use as backfill
- 2.2 define the different types of imported materials and their suitability for use as backfill
- 2.3 state why excavated materials may be unsuitable for backfill
- 2.4 define the correct storage arrangements for backfill materials
- 2.5 identify backfill materials that are suitable as surround to utilities apparatus
- 2.6 state the consequences of using unsuitable material for backfill
- 2.7 identify the correct backfill materials to use in high risk areas
- 2.8 state how to prevent the obstruction or damage of essential facilities and street furniture.

Learning Outcome 3: Understand how to backfill an excavation

Assessment criteria:

- 3.1 define the factors that influence the selection of reinstatement and compaction equipment to suit the material type and excavation dimensions
- 3.2 identify the types of equipment that will minimise the potential for damage to underground utilities apparatus
- 3.3 state the level of backfill layer required for different footway and carriageway designs in accordance with the appropriate specifications
- 3.4 identify the required amount of compaction for each layer using specific equipment state how the degree of compaction can be confirmed.

Learning Outcome 4: Understand how to dispose of surplus materials

Assessment criteria:

- 4.1 specify how excavated materials are determined as surplus to requirements or unsuitable for re-use
- 4.2 state the importance of storing unsuitable and re-usable materials separately
- 4.3 state when surplus materials should be removed from site.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 005, 6156-21 Unit 205, 6156-23 Unit 225, 6157-02 Unit 005 or 6167-01 Unit 105 Reinstatement of Sub-base and Base (Roadbase) in non-bituminous materials and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to prepare the backfill layer for subsequent layers
- 2 Understand how to select materials for sub-base and roadbase
- 3 Understand how to reinstate the sub-base and roadbase layers
- 4 Understand how to dispose of surplus materials

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- The Specification for the Reinstatement of Openings in Highways
- National Joint Utilities Group publications.

Learning Outcome 1: Understand how to prepare the backfill layer for subsequent layers

Assessment criteria:

- 1.1 state why loose and unacceptable materials are removed from the area to be reinstated
- 1.2 state how loose and unacceptable materials are removed from the area to be reinstated
- 1.3 state the purpose and requirements for a firm backfill layer
- 1.4 identify materials that can be used to replace an inadequate backfill layer
- 1.5 define how potential backfill layer defects are identified and corrected
- 1.6 state the potential consequences if backfill layer defects are not corrected.

Learning Outcome 2: Understand how to select materials for sub-base and roadbase

Assessment criteria:

- 2.1 identify the different types of excavated and imported materials that are suitable for reinstating sub-base and base
- 2.2 define the permitted range of alternative reinstatement materials (ARMs), stabilised materials for fill (SMFs) and other materials for use as surround to apparatus
- 2.3 define how excavated materials suitable for re-use should be stored on site to prevent degradation
- 2.4 state how to safely unload and store imported materials on site
- 2.5 state how to prevent the obstruction or damage of essential facilities and street furniture.

Learning Outcome 3: Understand how to reinstate the sub-base and roadbase layers

Assessment criteria:

- 3.1 define the factors that influence the selection of equipment for the prescribed operation
- 3.2 state how to measure the specified level of each layer
- 3.3 state the checks required to confirm that the sub-base and base layer has been constructed to the correct specifications.

Learning Outcome 4: Understand how to dispose of surplus materials

Assessment criteria:

- 4.1 define how materials that are unsuitable for re-use or surplus to requirements are identified
- 4.2 state the importance of storing unsuitable and re-usable materials separately
- 4.3 state when surplus materials should be removed from site.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 006, 6156-21 Unit 206, 6156-23 Unit 226, 6157-02 Unit 006 or 6167-01 Unit 106 Reinstatement in Cold-Lay Bituminous Materials and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to prepare the layer of pavement structure to receive cold-lay surfacing materials
- 2 Understand how to construct a cold-lay bituminous surfacing layer
- 3 Understand how to dispose of surplus materials

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- The Specification for the Reinstatement of Openings in Highways
- National Joint Utilities Group publications.

Learning Outcome 1: Understand how to prepare the layer of pavement structure to receive cold-lay surfacing materials

Assessment criteria:

- 1.1 state why loose and unacceptable materials are removed from the area to be reinstated
- 1.2 state how loose and unacceptable materials are removed from the area to be reinstated
- 1.3 state the potential consequences of pavement layer surface contamination or defects
- 1.4 define how pavement layer surface contamination or defects are identified and corrected
- 1.5 state how to identify and correct edge damage and undercut
- 1.6 define how displaced ironwork, kerbs and edge restraints are repositioned
- 1.7 state the potential consequences of incorrect pavement layer construction.

Learning Outcome 2: Understand how to construct a cold-lay bituminous surfacing layer

Assessment criteria:

- 2.1 define the factors that influence the selection of equipment for the prescribed operation
- 2.2 state the checks required to ensure that equipment is in working condition and safe to use
- 2.3 define the handling and storage procedures for cold-lay bituminous material
- 2.4 state why cavity edges are sealed before placing surface layers

- 2.5 state how to determine the surcharge prior to compaction of cold-lay surfacing materials
- 2.6 define the compaction procedures for cold-lay bituminous material
- 2.7 state how to confirm that the compacted layer thickness meets specifications.

Learning Outcome 3: Understand how to dispose of surplus materials

Assessment criteria:

- 3.1 define how materials that are unsuitable for re-use or surplus to requirements are identified
- 3.2 state the importance of storing unsuitable and re-usable materials separately
- 3.3 state when surplus materials should be removed from site.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 007, 6156-21 Unit 207, 6156-23 Unit 227, 6157-02 Unit 007 or 6167-01 Unit 107 Reinstatement in Hot-Lay Bituminous Materials and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to prepare the layer of pavement structure to receive hot-lay surfacing materials
- 2 Understand how to construct a bituminous base (roadbase) and binder course
- 3 Understand how to construct an asphalt surface course
- 4 Understand how to dispose of surplus materials

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- The Specification for the Reinstatement of Openings in Highways
- National Joint Utilities Group publications.

Learning Outcome 1: Understand how to prepare the layer of pavement structure to receive hot-lay surfacing materials

Assessment criteria:

- 1.1 state how the depth is checked to confirm that it is suitable for reinstating binder and surface course layers
- 1.2 state why loose and unacceptable materials are removed from the area to be reinstated
- 1.3 state the potential consequences of pavement layer surface contamination or defects
- 1.4 define how pavement layer surface contamination or defects are identified and corrected
- 1.5 state how to identify and correct edge damage and undercut
- 1.6 define how displaced ironwork, kerbs and edge restraints are repositioned
- 1.7 state the potential consequences of incorrect pavement layer construction.

Learning Outcome 2: Understand how to construct a bituminous base (roadbase) and binder course

Assessment criteria:

- 2.1 state the quality requirements of the selected material
- 2.2 state the temperature ranges of hot-lay bituminous materials
- 2.3 define why it is important to maintain tool temperatures when working with hot-lay bituminous materials

- 2.4 state how the bituminous material in base and/or binder course and surface course layers is spread and levelled
- 2.5 define the factors that influence the selection of equipment for the prescribed operation
- 2.6 state the checks required to ensure that equipment is in working condition and safe to use
- 2.7 define the handling and storage procedures for hot-lay bituminous material
- 2.8 state why cavity edges are sealed before placing surface layers
- 2.9 define the compaction procedures for hot-lay bituminous material
- 2.10 state how to confirm that compacted layer thickness meets specifications.

Learning Outcome 3: Understand how to construct the surface course

Assessment criteria:

- 3.1 define the correct procedures and requirements for applying tack coat
- 3.2 define the quality requirements for the selected material
- 3.3 state why it is important to use hot-lay bituminous material at the correct temperature
- 3.4 state why it is important to maintain tool temperatures when working with hot-lay bituminous materials
- 3.5 define how to spread and level bituminous material in an asphalt surface course layer
- 3.6 define how to measure material temperatures before use
- 3.7 define the factors that influence the selection of equipment for the prescribed operation
- 3.8 define the handling and storage procedures for hot-lay bituminous material
- 3.9 state how to check that equipment is in working condition and safe to use
- 3.10 define the compaction procedures for hot-lay bituminous material
- 3.11 define how to avoid overbreak to vertical surfaces
- 3.12 state how cavity edges are sealed before placing surface layers
- 3.13 state how to confirm that compacted layer thicknesses meets specifications
- 3.14 state the potential consequences of incorrect payer layer construction
- 3.15 state the method used to ensure skid resistance and texture depth from specifications

Learning Outcome 4: Understand how to dispose of surplus materials

Assessment criteria:

- 4.1 define how materials that are unsuitable for re-use or surplus to requirements are identified
- 4.2 state the importance of storing unsuitable and re-usable materials separately
- 4.3 state when surplus materials should be removed from site.

Unit 524

Reassessed reinstatement of concrete slabs

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 008, 6156-21 Unit 208, 6156-23 Unit 228, 6157-02 Unit 008 or 6167-01 Unit 108 Reinstatement of Concrete Slabs and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to prepare sub-base to receive concrete slab
- 2 Understand how to prepare the edges of existing slab to receive concrete reinstatement
- 3 Understand how to lay mesh reinforcement
- 4 Understand how to form concrete slab
- 5 Understand how to dispose of surplus materials

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- The Specifications for the Reinstatement of Openings in Highways.

Learning Outcome 1: Understand how to prepare sub-base to receive concrete slab

Assessment criteria:

- 1.1 state why loose and unacceptable materials are removed from the area to be reinstated
- 1.2 state how loose and unacceptable materials are removed from the area to be reinstated
- 1.3 identify different sub-base defects that could be encountered
- 1.4 identify approved sub-base materials for replacing unacceptable materials
- 1.5 define the procedures for replacing defective sub-base materials with approved materials
- 1.6 define the factors that influence the selection of equipment for the prescribed operation
- 1.7 state the checks required to ensure that equipment is in working condition and safe to use
- 1.8 state how to check that the sub-base material is adequately compacted
- 1.9 define how the cavity depth is checked to ensure it will accommodate the specified slab thickness.

Learning Outcome 2: Understand how to prepare the edges of existing slab to receive concrete reinstatement

Assessment criteria:

- 2.1 state how to correctly saw cut the edge of an existing slab

- 2.2 state how to rough cut the unsawn section of the exposed slab edge to form a taper-edge support
- 2.3 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
- 2.4 define the problems that may be caused by not placing slip membranes in accordance with specifications
- 2.5 state the importance of cleaning and wetting the edges of the existing slab prior to the placement of concrete.

Learning Outcome 3: Understand how to lay mesh reinforcement

Assessment criteria:

- 3.1 state the minimum length of the existing reinforcement to expose, and when to use further trimming
- 3.2 define the factors that influence the selection of mesh reinforcement
- 3.3 state the procedures for measuring and cutting mesh reinforcement
- 3.4 define how to position new reinforcement and how to attach it to existing reinforcement

Learning Outcome 4: Understand how to form concrete slab

Assessment criteria:

- 4.1 identify the types of carriageway on which concrete reinstatement is carried out
- 4.2 state the correct procedures for replacing and constructing different types of joints
- 4.3 define how to check that concrete conforms to specifications and quality requirements
- 4.4 identify equipment required to compact concrete safely and achieve maximum density
- 4.5 state the strength of concrete required prior to opening to traffic
- 4.6 define how to confirm the workability of concrete
- 4.7 state the texture and skid resistance required for the finished surface
- 4.8 define the methods and purpose of curing concrete according to prevailing conditions.

Learning Outcome 5: Understand how to dispose of surplus materials

Assessment criteria:

- 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.

Unit 525

Reassessed reinstatement of modular surfaces and concrete footways

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 009, 6156-21 Unit 209, 6156-23 Unit 229, 6157-02 Unit 009 or 6167-01 Unit 109 Reinstatement of Modular Surfaces and Concrete Footways and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to remove existing modular and concrete surfacing
- 2 Understand how to prepare the sub-base
- 3 Understand how to lay bedding materials
- 4 Understand how to lay modular or concrete surfacing
- 5 Understand how to dispose of surplus materials

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- An Introduction to the Use of Portable Temporary Traffic Lights.

Learning Outcome 1: Understand how to remove existing modular and concrete surfacing

Assessment criteria:

- 1.1 state the factors that influence the selection of equipment for the prescribed operation
- 1.2 state how to check that equipment is in working condition and safe to use
- 1.3 define the methods or techniques used to avoid damage when taking up existing modules
- 1.4 define the procedures for taking up concrete surfacing
- 1.5 state why adhesive residues are removed, and modules brushed clean
- 1.6 differentiate between
 - (a) damaged modules that cannot be reused
 - (b) modules suitable for interim reinstatement
 - (c) modules suitable for permanent reinstatement
- 1.7 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.

Learning Outcome 2: Understand how to prepare the sub-base

Assessment criteria:

- 2.1 state why loose and unacceptable materials are removed from the area to be reinstated
- 2.2 state how to remove loose and unacceptable materials 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 defective 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 sub base compaction equipment for the prescribed operation
- 2.7 state the checks required to ensure that sub-base compaction equipment is in working condition and safe to use
- 2.8 define the consequences of poor reinstatement of sub-base materials
- 2.9 define how displaced ironwork, kerbs and edge restraints are repositioned.

Learning Outcome 3: Understand how to lay bedding materials

Assessment criteria:

- 3.1 define the factors that influence the selection of bedding materials
- 3.2 define the factors that influence the selection of equipment for the prescribed operation
- 3.3 state the check required to ensure that equipment is in working condition and safe to use
- 3.4 state the importance of laying bedding material evenly and to a specified depth
- 3.5 state the specified tolerances for laying bedding material
- 3.6 define the consequences of poor compaction of bedding materials.

Learning Outcome 4: Understand how to lay modular or concrete surfacing

Assessment criteria:

- 4.1 define the factors that influence the selection of equipment for the prescribed operation
- 4.2 define the checks required to ensure that equipment is in working condition and safe to use
- 4.3 identify modules and concrete that are suitable for different reinstatement operations
- 4.4 identify the different bond patterns used in modular construction
- 4.5 state the methods used for cutting modules
- 4.6 define the procedures for bedding and compacting modules to the existing line and level
- 4.7 define the procedures for applying and finishing jointing material
- 4.8 define the consequences of inadequate compaction
- 4.9 define the consequences of not replacing the membrane to specifications
- 4.10 state how concrete is checked to confirm it is acceptable for use
- 4.11 define the procedures for laying the concrete surfacing
- 4.12 define the procedures for applying a texture to the finished concrete surface
- 4.13 define the procedures for curing the concrete.

Learning Outcome 5: Understand how to dispose of surplus materials

Assessment criteria:

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.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 010, 6156-21 Unit 210, 6156-23 Unit 230, 6157-02 Unit 010 or 6167-01 Unit 110 Monitoring Signing, Lighting and Guarding and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to monitor a work site survey
- 2 Understand how to monitor the protection of pedestrians, vehicular traffic and site personnel
- 3 Understand how to monitor the provision of portable traffic signals and Stop/Go traffic control
- 4 Understand how to monitor site safety

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- An Introduction to the Use of Portable Temporary Traffic Lights.

Learning Outcome 1: Understand how to monitor a work site survey
Assessment criteria:

1.1 define the requirements of the Code of Practice in respect of surveying the work site
 1.2 state the health and safety requirements relating to surveying the work site
 1.3 state the planning requirements for the provision of footways, traffic lanes and safety zones to meet the needs of:

- (a) the site location
- (b) vehicular 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.

1.4 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

1.5 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:

- (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
- 1.6 state the problems that can occur with planned provision arising from a work site survey, and the appropriate remedial action to resolve them
- 1.7 define the appropriate site conditions for the use of stop/go, priority signing, and give and take systems of working
- 1.8 state the conditions or limitations for using the Stop Works sign
- 1.9 define the appropriate circumstances for using mobile and short duration works.

Learning Outcome 2: Understand how to monitor the protection of pedestrians, vehicular traffic and site personnel

Assessment criteria:

- 2.1 define the personal protective equipment to meet the job requirements
- 2.2 define the factors governing the provision of footways, traffic lanes and safety zones and when it is necessary to liaise with the highway authority
- 2.3 state how the equipment meets the requirements of the site location and any special needs, including:
 - (a) the safe passage of pedestrians and vulnerable users
 - (b) minimising disruption to and ensuring safety of vehicular traffic
 - (c) site specific hazards.
- 2.4 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
- 2.5 identify the specified sequences for positioning and removing equipment
- 2.6 define the potential problems with the protection of pedestrians, vehicular traffic and site personnel, and the appropriate remedial action.

Learning Outcome 3: Understand how to monitor the provision of portable traffic signals and Stop/Go traffic control

Assessment criteria:

- 3.1 define the specifications used to identify that portable traffic signals are suitable for use on the highway
- 3.2 state the procedures for inspecting and testing signals for correct operation
- 3.3 define how the site location requirements affect the positioning of signals, and the circumstances under which the highway authority must be consulted
- 3.4 state the correct sequence for positioning signals
- 3.5 state how the prevailing traffic conditions affect the adjustment of signal controls
- 3.6 define the requirements for dismantling and removal of portable traffic signals
- 3.7 define the requirements for installation and removal of stop/go traffic control
- 3.8 state potential problems with the provision of portable traffic signals and stop/go traffic control and the appropriate remedial action.

Learning Outcome 4: Understand how to monitor site safety

Assessment criteria:

- 4.1 define the purpose of a site-specific risk assessment
- 4.2 state the health and safety requirements for site operations
 - (a) Works at or near railway property

(b) Mobile and short duration works

(c) Temporary traffic light equipment failure

4.3 state the safety equipment required during site operations and how to ensure that it is fit for purpose

4.4 describe safe working practices on site

4.5 describe the potential risks to site safety and the appropriate remedial action.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 011, 6156-21 Unit 211, 6156-023 Unit 231, 6157-02 Unit 011 or 6167-01 Unit 111 Monitoring Excavation in the Highway and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to monitor excavation work in the highway
- 2 Understand how to monitor the action taken to avoid damage to underground apparatus during excavation
- 3 Understand how to monitor the selection, disposal and storage of excavated materials
- 4 Understand how to monitor site safety

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice.
- The Specification for the Reinstatement of Openings in Highways.
- National Joint utilities Group publications.

Learning Outcome 1: Understand how to monitor excavation work in the highway

Assessment criteria:

- 1.1 identify the characteristics of recognised footway and carriageway designs
- 1.2 describe the equipment required for excavating in the highway and the factors influencing their selection
- 1.3 define the requirements that equipment must meet to be considered fit for purpose
- 1.4 define the appropriate methods used to identify areas of high risk relating to excavation activities
- 1.5 define the appropriate precautions to take when excavating in areas of high risk
- 1.6 state how to check that a trench has been excavated to the correct specifications
- 1.7 state the excavation techniques that minimise subsequent reinstatement problems
- 1.8 identify potential issues poor excavation work may cause and the appropriate remedial actions.

Learning Outcome 2: Understand how to monitor the action taken to avoid damage to underground apparatus during excavation

Assessment criteria:

- 2.1 define how to locate and mark the different types of utilities apparatus found in the highway
- 2.2 specify the characteristics used to identify the different types of exposed utilities apparatus
- 2.3 state the potential consequences of damaging underground utilities apparatus
- 2.4 state the appropriate remedial action to take when underground utilities apparatus has been damaged
- 2.5 state the precautions required to avoid damage to utilities apparatus
- 2.6 specify how to safely support and protect exposed utilities apparatus
- 2.7 define the circumstances in which trench support systems would be required, and where to find the guidelines for its installation and safe use.

Learning Outcome 3: Understand how to monitor the selection, disposal and storage of excavated materials

Assessment criteria:

- 3.1 identify the range of backfill, sub-base materials that may be re-used
- 3.2 define the factors influencing the selection of materials for re-use or for disposal and the consequences of using unsuitable materials
- 3.3 state the suitable and safe storage procedures for re-usable materials
- 3.4 specify how the characteristics of excavated materials affect storage arrangements
- 3.5 define the storage and disposal procedures for materials that cannot be re-used
- 3.6 state the potential problems with selection, storage and disposal of materials and the appropriate remedial action.

Learning Outcome 4: Understand how to monitor site safety

Assessment criteria:

- 4.1 define the purpose of a site-specific risk assessment
- 4.2 state the health and safety requirements for site operations
- 4.3 define the health and safety requirements for different site conditions
- 4.4 define the safety equipment required during site operations and how to ensure that it is fit for purpose
- 4.5 state the safe working practices on site
- 4.6 define the potential risks to site safety and the appropriate remedial action
- 4.7 state how to leave the site in a clean and safe condition.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 012, 6156-21 Unit 212, 6156-23 Unit 232, 6157-02 Unit 012 or 6167-01 Unit 112 Monitoring Reinstatement and Compaction of Backfill Materials and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to monitor the selection and storage of backfill materials in footway and carriageway reinstatement
- 2 Understand how to monitor the selection of plant for compaction of backfill material
- 3 Understand how to monitor the construction of the backfill layer
- 4 Understand how to monitor the action taken to avoid damage to underground apparatus during backfill operations
- 5 Understand how to monitor site safety

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- Specifications for the Reinstatement of Openings in Highways
- National Joint utilities Group publications.

Learning Outcome 1: Understand how to monitor the selection and storage of backfill materials in footway and carriageway reinstatement

Assessment criteria:

- 1.1 identify the range of backfill materials permitted in the current specification
- 1.2 define the factors that influence the selection of materials for use as backfill or for disposal
- 1.3 state the consequences of using unsuitable materials for backfill
- 1.4 identify the materials that are suitable for use in high risk areas
- 1.5 define the safe storage arrangements for:
 - (a) re-usable materials
 - (b) imported materials
 - (c) materials unsuitable for re-use
- 1.6 state how the characteristics of materials affect storage arrangements
- 1.7 state the potential problems with selection and storage of backfill materials, and the appropriate remedial action.

Learning Outcome 2: Understand how to monitor the selection of plant for compaction of backfill material

Assessment criteria:

- 2.1 define the factors that influence the selection of compaction plant and equipment
- 2.2 state how to check that the compaction plant is fit for purpose
- 2.3 state the potential problems with the selection of compaction plant, and the appropriate remedial action.

Learning Outcome 3: Understand how to monitor the construction of the backfill layer

Assessment criteria:

- 3.1 describe how to interpret the specification for constructing the backfill layer in footway and carriageway reinstatement
- 3.2 describe how to check the construction of the backfill layer to ensure:
 - (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**
- 3.3 state the methods used to confirm that construction of the backfill layer meets specifications
- 3.4 state the potential problems with the construction of the backfill layer, and the appropriate remedial action.

Learning Outcome 4: Understand how to monitor the action taken to avoid damage to underground apparatus during backfill operations

Assessment criteria:

- 4.1 state how to identify the different types of utilities apparatus on site
- 4.2 identify the different methods of safely supporting and protecting exposed utilities apparatus
- 4.3 define the potential risks and consequences of damage to utilities apparatus
- 4.4 state the precautions required to avoid damage to utilities apparatus
- 4.5 state the potential problems arising from damage to utilities' apparatus, and the appropriate remedial action.

Learning Outcome 5: Understand how to monitor site safety

Assessment criteria:

- 5.1 define the purpose of a site-specific risk assessment
- 5.2 state the health and safety requirements for site operations
- 5.3 define the health and safety requirements for different site conditions
- 5.4 define the safety equipment required during site operations and how to ensure that it is fit for purpose
- 5.5 state the safe working practices on site
- 5.6 define the potential risks to site safety and the appropriate remedial action
- 5.7 state how to leave the site in a clean and safe condition.

Unit 529

Reassessed monitoring reinstatement of sub-base and base in non-bituminous materials

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 013, 6156-21 Unit 213, 6156-23 Unit 233, 6157-02 Unit 013 or 6167-01 Unit 113 Monitoring Reinstatement of Sub-base and Base (Roadbase) in Non-bituminous Material and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to monitor the selection of non-bituminous materials for sub-base and base reinstatement
- 2 Understand how to monitor the selection of plant for compaction of sub-base and roadbase material
- 3 Understand how to monitor the construction of sub-base and roadbase materials
- 4 Understand how to monitor site safety

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- Specifications for the Reinstatement of Openings in Highways
- National Joint utilities Group publications.

Learning Outcome 1: Understand how to monitor the selection of non-bituminous materials for sub-base and base reinstatement

Assessment criteria:

- 1.1 identify the range of sub-base and base materials permitted in the current specification
- 1.2 describe the factors influencing the selection of materials for use in sub-base and base and the consequences of using unsuitable materials
- 1.3 calculate quantities of different materials that are used in sub-base and base reinstatement
- 1.4 define the safe storage arrangements for:
 - (a) re-usable
 - (b) imported materials
 - (c) materials unsuitable for re-use
- 1.5 state the potential problems with selection and storage of sub-base and base materials, and the appropriate remedial action.

Learning Outcome 2: Understand how to monitor the selection of plant for compaction of sub-base and roadbase material

Assessment criteria:

- 2.1 define the factors that influence the selection of compaction plant
- 2.2 state how to check that the compaction plant is in working condition and safe to use
- 2.3 state the potential problems with the selection of compaction plant for sub-base and base reinstatement, and the appropriate remedial action.

Learning Outcome 3: Understand how to monitor the construction of sub-base and roadbase materials

Assessment criteria:

- 3.1 state how to identify when the backfill or surround is adequately prepared to receive subsequent layers
- 3.2 state how to interpret the specification for constructing the non-bituminous layer in different pavement structures and road types.
- 3.3 define how to check the construction of layers to ensure the
 - (a) correct use of equipment and materials
 - (b) achieved compaction level
 - (c) correct layer thickness and degree of compaction
 - (d) correct construction in high risk areas
- 3.4 define the measuring equipment for checking the construction of the sub-base and base
- 3.5 state the potential problems with the construction of the sub-base and base, and the appropriate remedial action.

Learning Outcome 4: Understand how to monitor site safety

Assessment criteria:

- 4.1 define the purpose of a site-specific risk assessment
- 4.2 state the health and safety requirements for site operations
- 4.3 define the health and safety requirements for particular site conditions
- 4.4 define the safety equipment required during site operations and how to ensure that it is fit for purpose
- 4.5 state the safe working practices on site
- 4.6 define the potential risks to site safety and the appropriate remedial action
- 4.7 state how to leave the site in a clean and safe condition.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 014, 6156-21 Unit 214, 6156-23 Unit 234, 6157-02 Unit 014 or 6167-01 Unit 114 Monitoring Reinstatement in Bituminous Materials and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to monitor the selection of bituminous materials for flexible footway and carriageway reinstatement
- 2 Understand how to monitor the selection of plant for the compaction of bituminous materials
- 3 Understand how to monitor the construction of flexible, base (roadbase) and surface layers in hot and cold-lay bituminous materials
- 4 Understand how to monitor site safety

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- Specifications for the Reinstatement of Openings in Highways

Learning Outcome 1: Understand how to monitor the selection of bituminous materials for flexible footway and carriageway reinstatement

Assessment criteria:

- 1.1 define the range of bituminous materials permitted in the current specification
- 1.2 define the factors influencing the selection of bituminous materials and the consequences of using unsuitable materials
- 1.3 calculate quantities of different bituminous materials used in flexible footway and carriageway reinstatement
- 1.4 state the suitable and safe storage procedures for bituminous materials
- 1.5 state the potential problems with selection and storage of bituminous materials, and the appropriate remedial action.

Learning Outcome 2: Understand how to monitor the selection of plant for the compaction of bituminous materials

Assessment criteria:

- 2.1 define the factors that influence the selection of compaction plant
- 2.2 state how to check that the compaction plant is in working condition and safe to use
- 2.3 state the potential problems with the selection of compaction plant for reinstatement in bituminous materials, and the appropriate remedial action.

Learning Outcome 3: Understand how to monitor the construction of flexible, base (roadbase) and surface layers in hot and cold-lay bituminous materials

Assessment criteria:

- 3.1 state how to interpret the specification for constructing the bituminous flexible, base and surface layers in different pavement structures and road types
- 3.2 define the intervention limits permitted in specifications
- 3.3 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
- 3.4 state how to check that the texture depth and finished level of the surface reinstatement are correct
- 3.5 state how to check that the profile of the finished surface is within permitted tolerances
- 3.6 state the potential problems with the construction of the base and surface layers and the appropriate remedial action.

Learning Outcome 4: Understand how to monitor site safety

Assessment criteria:

- 4.1 define the purpose of a site-specific risk assessment
- 4.2 state the health and safety requirements for site operations
- 4.3 define the health and safety requirements for particular site conditions
- 4.4 define the safety equipment required during site operations and how to ensure that it is fit for purpose
- 4.5 state the safe working practices on site
- 4.6 define the potential risks to site safety and the appropriate remedial action
- 4.7 state how to leave the site in a clean and safe condition.

Unit 531

Reassessed monitoring the reinstatement of concrete slabs

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 015, 6156-21 Unit 215, 6156-23 Unit 235, 6157-02 Unit 015 or 6167-01 Unit 115 Monitoring the Reinstatement of Concrete Slabs and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to monitor the preparation for concrete slab reinstatement
- 2 Understand how to monitor the reinstatement of concrete slabs
- 3 Understand how to monitor site safety

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- Specifications for the Reinstatement of Openings in Highways

Learning Outcome 1: Understand how to monitor the preparation for concrete slab reinstatement

Assessment criteria:

- 1.1 identify the type of carriageway on which the reinstatement of concrete slabs is carried out
- 1.2 define the factors that influence the selection of materials and equipment for reinstating concrete slabs
- 1.3 identify different potential sub-base defects
- 1.4 state how to rectify different sub base defects
- 1.5 define the procedures for positioning the slip membrane and preparing slab edges
- 1.6 define the procedures for providing taper edge and dowel bar support
- 1.7 define the procedures for laying and fixing mesh reinforcement
- 1.8 state the potential problems with the preparation for concrete slab reinstatement and the appropriate remedial action.

Learning Outcome 1: Understand how to monitor the reinstatement of concrete slabs

Assessment criteria:

- 2.1 define the methods used to construct concrete slabs
- 2.2 state the different joints used in constructing concrete slabs
- 2.3 define the construction methods for different joints
- 2.4 define factors that affect the quality of the finished concrete surface

- 2.5 define the checks and tests to confirm the quality of the concrete slab and finished surface
- 2.6 state the potential problems with the reinstatement of concrete slabs, and the appropriate remedial action.

Learning Outcome 3: Understand how to monitor site safety

Assessment criteria:

- 3.1 define the purpose of a site-specific risk assessment
- 3.2 state the health and safety requirements for site operations
- 3.3 define the health and safety requirements for particular site conditions
- 3.4 define the safety equipment required during site operations and how to ensure that it is fit for purpose
- 3.5 state the safe working practices on site
- 3.6 define the potential risks to site safety and the appropriate remedial action
- 3.7 state how to leave the site in a clean and safe condition.

Introduction

This unit is only suitable for those who hold a current 6156-01 Unit 016, 6156-21 Unit 216, 6156-23 Unit 236, 6157-02 Unit 016 or 6167-01 Unit 116 Reinstatement of Modular Surfaces and Concrete Footways and are to re-qualify and be able to re-register their qualification within the permitted timescales set out in the *Street Works (Qualifications of Supervisors and Operatives) (England) Regulations 2009*. This unit covers the knowledge required to be prepared to undertake reassessment. This unit will also apply in Wales, Scotland and Northern Ireland under devolved Regulation.

- 1 Understand how to monitor the reinstatement of concrete blocks in carriageways or footways
- 2 Understand how to monitor the reinstatement of paving slabs in footways
- 3 Understand how to monitor the reinstatement of concrete footways
- 4 Understand how to monitor site safety

The documents referred to in undertaking examination for this unit are:

- Safety at Streetworks and Roadworks Approved Code of Practice
- Specifications for the Reinstatement of Openings in Highways

Learning Outcome 1: Understand how to monitor the reinstatement of concrete blocks in carriageways or footways

Assessment criteria:

- 1.1 Identify the types of road on which the reinstatement of concrete blocks is carried out
- 1.2 define the factors that influence the selection of materials and equipment for reinstating concrete blocks
- 1.3 state how to identify different potential sub-base defects
- 1.4 state how to rectify different sub-base defects
- 1.5 define the procedures and quality checks and tests relating to:
 - (a) laying of bedding materials
 - (b) laying concrete blocks
 - (c) jointing
- 1.6 define the factors that affect the quality of the finished modular surface
- 1.7 define the checks required to ensure the quality of the finished modular surface
- 1.8 state the potential problems with reinstatement of concrete blocks and the appropriate remedial action.

Learning Outcome 2: Understand how to monitor the reinstatement of paving slabs in footways

Assessment criteria:

- 2.1 ensure that materials selected for use are identified and checked against the current specification
- 2.2 identify the types of road on which the reinstatement of paving slabs is carried out
- 2.3 define the factors that influence the selection of materials and equipment for reinstating paving slabs
- 2.4 state how to identify different potential sub-base defects
- 2.5 state how to rectify different sub-base defects
- 2.6 define the procedures and quality checks and tests relating to:
 - (a) laying bedding materials
 - (b) laying paving slabs
 - (c) jointing
- 2.7 define the factors that affect the quality of the finished modular surface
- 2.8 define the checks required to ensure the quality of the finished modular surface
- 2.9 state potential problems with reinstatement of paving slabs and the appropriate remedial action.

Learning Outcome 3: Understand how to monitor the reinstatement of concrete footways

Assessment criteria:

- 3.1 identify the types of footway on which concrete reinstatement is carried out
- 3.2 define the factors that influence the selection of materials and equipment for reinstating concrete footways
- 3.3 state how to identify different potential sub-base defects
- 3.4 state how to rectify different sub-base defects
- 3.5 define the procedures and quality checks and tests relating to:
 - (a) laying concrete
 - (b) compacting concrete
 - (c) curing concrete
- 3.6 affect the quality of the finished surface
- 3.7 define the checks required to ensure the quality of the finished surface
- 3.8 state the potential problems with reinstatement of concrete footways and the appropriate remedial action.

Learning Outcome 4: Understand how to monitor site safety

Assessment criteria:

- 4.1 define the purpose of a site-specific risk assessment
- 4.2 state the health and safety requirements for site operations
- 4.3 define the health and safety requirements for particular site conditions
- 4.4 define the safety equipment required during site operations and how to ensure that it is fit for purpose
- 4.5 state the safe working practices on site
- 4.6 define the potential risks to site safety and the appropriate remedial action

Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centre document library** on **www.cityandguilds.com** or click on the links below:

Centre Handbook: Quality Assurance Standards

This document is for all approved centres and provides guidance to support their delivery of our qualifications. It includes information on:

- centre quality assurance criteria and monitoring activities
- administration and assessment systems
- centre-facing support teams at City & Guilds/ILM
- centre quality assurance roles and responsibilities.

The Centre Handbook should be used to ensure compliance with the terms and conditions of the centre contract.

Centre Assessment: Quality Assurance Standards

This document sets out the minimum common quality assurance requirements for our regulated and non-regulated qualifications that feature centre-assessed components. Specific guidance will also be included in relevant qualification handbooks and/or assessment documentation.

It incorporates our expectations for centre internal quality assurance and the external quality assurance methods we use to ensure that assessment standards are met and upheld. It also details the range of sanctions that may be put in place when centres do not comply with our requirements or actions that will be taken to align centre marking/assessment to required standards. Additionally, it provides detailed guidance on the secure and valid administration of centre assessments.

Access arrangements: When and how applications need to be made to City & Guilds

provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **Centre document library** also contains useful information on such things as:

- conducting examinations
- registering learners
- appeals and malpractice.

Useful contacts

Please visit the **Contact us** section of the City & Guilds website.

City & Guilds

For over 140 years, we have worked with people, organisations and economies to help them identify and develop the skills they need to thrive. We understand the life-changing link between skills development, social mobility, prosperity and success. Everything we do is focused on developing and delivering high-quality training, qualifications, assessments and credentials that lead to jobs and meet the changing needs of industry.

We partner with our customers to deliver work-based learning programmes that build competency to support better prospects for people, organisations and wider society. We create flexible learning pathways that support lifelong employability because we believe that people deserve the opportunity to (re)train and (re)learn again and again – gaining new skills at every stage of life, regardless of where they start.

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