Unit title	Sewerage and Drainage Essential Knowledge
SQA code	H8MC 04
SCQF level	5
SCQF credit points	9
SSC ref	EUS SD3

History of changes

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Version number	Date	Description	Authorised by

Title	Sewerage and Drainage Essential Knowledge

Learning Outcomes **The learner will:**	**Assessment Criteria** **The learner can:**
1 Understand sewerage legislation and its impact on work activities in accordance with approved procedures and practices.	1.1 Provide an acceptable definition of the term ‘sewer’. 1.2 Provide an acceptable definition of the term ‘drain’. 1.3 Outline the differences in sewerage legislation between different UK countries. 1.4 Explain how the public or private ownership of sewers can affect work activities and responsibilities. 1.5 Outline the requirements of environmental legislation in relation to working on sewers and drains.
2 Understand basic sewerage and drainage layouts, components and operational planning in accordance with approved procedures and practices.	2.1 Describe key elements of different types of sewerage and drainage systems, including: (a) Foul drainage. (b) Surface water drainage. (c) Combined drainage. (d) Culverted watercourse. (e) Land drainage. (f) Sustainable urban drainage systems (SUDS). (g) Rising mains and pumped systems. 2.2 Describe different components that could be encountered while working with drainage systems. 2.3 Outline the principles of septic tank operations. 2.4 Describe general principles and process stages of wastewater treatment plant operations.

		2.5 Explain how carrying out sewerage maintenance work can impact on wastewater treatment works. 2.6 Identify features of plans, drawings and symbols, in relation to: (a) Asset numbering systems. (b) Company records. (c) Identification of other utilities and services. 2.7 Explain the importance of ensuring that asset plans and records are kept up to date. 2.8 Describe typical problems associated with failure mechanisms on drainage systems. 2.9 Explain how and why work is planned to take account of: (a) Traffic restrictions. (b) Traffic flows. (c) Sewer flows. (d) Site access. (e) Client or customer requirements.
3	Understand the hazards, controls and hygiene requirements associated with sewerage and drainage operations and approved procedures and practices.	3.1 Describe safe working practices, including the use of risk assessments and method statements. 3.2 Describe the hazards associated with the following, and the measures that can be taken to mitigate them: (a) Working in confined spaces. (b) Dangerous atmospheres including noxious gases; explosive atmospheres; oxygen deficiency. (c) Aerobic and anaerobic conditions. (d) Working at heights. (e) Working in excavations. (f) Lone working. (g) Slips, trips and falls. (h) Increasing water levels. (i) Tidal flows.

			(j) Occupational health risks and diseases. (k) Water pressure injuries. (l) Industrial waste/ trade effluent. (m) Sharps and needle stick injuries. (n) Working in public highways.
		3.3	Describe personal hygiene measures that must be taken when working in sewerage and drainage operations.
		3.4	Describe hygienic working practices that apply to work in sewerage and drainage operations.
		3.5	Describe how to handle and store sewerage and drainage equipment in a hygienic way.
		3.6	Describe the potential environmental impact of sewerage operations.
4	Understand basic sewerage and drainage techniques in accordance with approved procedures and practices.	4.1	Describe different types of techniques that are used during sewerage and drainage operations, including: (a) Rodding. (b) Jetting. (c) CCTV inspection. (d) Excavation and repair. (e) Trenchless technology. (f) Tracing and surveying.
		4.2	Describe the differences between dig and 'no dig' techniques, and the circumstances in which it is appropriate to use each technique.
5	Understand how to use tools and equipment associated with sewerage and drainage operations in accordance with approved procedures and practices.	5.1	Describe different types of tools and equipment that may be used during sewerage and drainage operations.
		5.2	Explain the limitations to the use of tools and equipment that can arise during specific circumstances, including those associated with: (a) Material. (b) Size.

	(c) Shape. (d) Entry systems. (e) Site access. (f) Scope of work. (g) Tool and equipment compatibility. 5.3 Explain safe working practices that must be followed when using tools and equipment for sewerage and drainage operations.

Additional information about the Unit
Unit purpose and aim(s)
This unit is designed to allow the learner to demonstrate own essential knowledge and understanding of sewerage and drainage. The units cover the following areas: • Sewerage legislation and its impact on work activities. Basic sewerage and drainage layouts, components and operational planning. The hazards, controls and hygiene associated with sewerage and drainage operations. • A basic understanding of sewerage and drainage techniques and maintenance. • The use of tools and equipment in sewerage and drainage operations.
Details of the relationship between the Unit and relevant national occupational standards (if appropriate)
Details of the relationship between the Unit and other standards or curricula (if appropriate)
Assessment requirements specified by a sector or regulatory body (if appropriate)
This unit must be assessed in line with the Energy & Utility Skills assessment strategy for vocational qualifications based on its national occupational standards.

Assessment (evidence) Requirements
This is a knowledge-based Unit, and all of the assessment criteria must be covered in full. The learner may demonstrate considerable knowledge through their workplace performance and during observed assessments, but it is likely that some assessor questioning will be needed to confirm that all knowledge requirements are met. The centre may use oral and/or written questioning to cover the knowledge requirements.
Guidance on Instruments of Assessment
The evidence for this Unit is likely to be generated through a mixture of observation reports, assessor-guided discussions and questioning, and workplace records, reports, or documentation and correspondence. Centres may also use question papers, assignments or other sources of evidence to confirm learners' coverage of the assessment criteria.