

EUSMUNC07 (SQA Unit Code - FA8M 04)

Excavate and maintain holes and trenches for Utilities Network Construction



Overview

This national occupational standard defines the competence involved in interpreting instructions, planning, organising and adopting safe working practices while preparing and carrying out the excavation of holes and trenches in ground and pavement structures, taking care of utility services and other sub-structures, trench support systems and the provision of entry and exit arrangements.

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Performance criteria

You must be able to:

Excavate on site to requirements

- P1 determine the method of excavation which is suitable for the surface and sub-surface materials being removed and which meets with statutory and regulatory Codes of Practice
- P2 carry out site-specific risk assessment, and review in accordance with company procedures.
- P3 select and wear the designated PPE
- P4 select and use the tools and equipment that are the most suitable for the method of excavation to be used
- P5 confirm the position and size of excavation in accordance with instructions and the work specification
- P6 excavate, identify, select, segregate and store materials in accordance with work instructions and Codes of Practice
- P7 carry out the excavation in a manner that avoids damage to supply apparatus
- P8 minimise damage to the natural environment in accordance with technical guidance and keep gullies and water courses clear at all times
- P9 support and protect exposed supply apparatus in accordance with work instructions and relevant Codes of Practice
- P10 remove surplus materials in accordance with work instructions and requirements
- P11 confirm dimensions and condition of excavation with instructions and the works specification
- P12 ensure work is carried out to approved procedures and practices and in compliance with statutory requirements

You must be able to:

Maintain the integrity of the excavation

- P13 confirm the method of support is fit-for-purpose to the size of the excavation and the nature of the ground conditions and adjacent structures
- P14 carry out installation and removal of support mechanisms in accordance with instructions and relevant Codes of Practice
- P15 maintain the condition of the excavation by adjustment to support mechanisms and removal of ground water as required
- P16 monitor and maintain the condition of support mechanisms safely to the requirements in accordance with operational and organisational safe working procedures
- P17 take steps to resolve situations that require measures to deal with dangerous atmospheres in accordance with relevant Codes of Practice

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- and safe working procedures
- P18 establish arrangements for access to, and egress from, the excavation in accordance with statutory requirements and approved procedures and practices
- P19 ensure all safety checks are carried out before any entry into excavation
- P20 take steps to ensure the site-specific risk assessment provides adequate safeguards in work practices to deal with the excavation becoming a confined space
- P21 confirm the condition of the ground area adjacent to the excavation as safe in accordance with relevant Codes of Practice
- P22 carry out all work to approved procedures and practices and in compliance with statutory requirements

You must be able to:

Use and communicate data and information

- P23 use information in the work instructions and specification to determine the work site and area to be excavated
- P24 report detrimental conditions and defects of the excavation and support mechanisms outside the responsibility of the job holder, in accordance with relevant Codes of Practice
- P25 use approved procedures and practices and statutory requirements to determine the requirement for excavation support
- P26 check with the designated personnel any circumstances where information appears incorrect
- P27 use organisational information systems to record and store data and information
- P28 follow all procedures where you are a lone worker

You must be able to:

Resolve problems that arise from the excavation work

- P29 report promptly - to the designated person - any damage to supply apparatus
- P30 resolve day-to-day problems within the responsibility of the job role
- P31 advise colleagues or managers where situations need them to intervene
- P32 refer matters outside responsibility of the job role to the designated people using approved procedures

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Knowledge and understanding

You need to know and understand:

General

- K1 the main responsibilities of the employer and employee under the Health and Safety at Work Act
- K2 the health and safety guidance governing work in excavations
- K3 the safe procedures for handling hazardous materials
- K4 organisational accident recording and reporting procedures
- K5 the range and use of personal protective equipment for the work

You need to know and understand:

Excavation

- K6 legislation governing supports for excavations
- K7 safe procedures for handling the range of excavation support equipment
- K8 the main methods of excavation including hand dig and machine
- K9 the equipment used for hand and machine excavation including hand and power tools and motorised equipment.
- K10 types of surfaces and sub-surfaces
- K11 the types of sub-surface materials used for the different paving surfaces
- K12 the main statutory requirements of operatives engaged in excavation work in terms of personal protection, excavation activities, the support of supply apparatus, the support of excavations
- K13 the need for a competent banksman when excavating by machine
- K14 requirements of legislation including statutory and regulatory provisions
- K15 refer matters outside responsibility of the job role to the designated people using approved procedures
- K16 the selection, use and care of hand and power tools
- K17 essential maintenance of hand and power tools
- K18 the types of damage to supply apparatus that can occur with the use of incorrect excavation practices
- K19 the safety risks in using incorrect excavation practices
- K20 the possible cost implications of incorrect excavation practices
- K21 the cost implications of exceeding the safe minimum required size of excavations, as determined by site requirements, in terms of additional labour and materials for the job
- K22 the additional inconvenience to the general public or the customer that could arise from excavations that exceed the minimum required size
- K23 the types and function of the different supplies that may be countered in excavation works, including utilities and other agency apparatus and above ground services, built structures, and natural features
- K24 how to identify the different types of supplies encountered in excavation work.
- K25 how failure to provide proper support could lead to damage to supply

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- apparatus or sub-structures
- K26 how failure to provide proper support to supply apparatus or sub-structures could lead to work having to be redone, with serious cost and operational implications
- K27 how failure to provide proper support to supply apparatus or sub-structures could lead to major safety hazards.
- K28 the importance of economy in the use of powered or motorised equipment for excavation works
- K29 safe methods of storage or disposal of materials with a potential environmental hazard
- K30 how the use of incorrect materials could lead to damage to the supply apparatus or sub-structure, costs in re-doing work, and delays in the job programme
- K31 how incorrect storage of materials could render materials unfit for use, with consequent cost implications.
- K32 approved procedures and practices in the context of the operations, the work activity and the workplace
- K33 industry procedures and practices for excavation work including environmental, organisational, regulatory, emergency, operational, health, safety and environment compliance, company procedures and risk assessments within the remit of the candidate's responsibility.
- K34 the roles and responsibilities of persons within the site/highways operations team
- K35 site management structures for site or highways operations.
- K36 the importance of referring problems outside the job holder's responsibility to the designated persons
- K37 responsibilities of the employer and employee under the Health and Safety at Work Act for work in excavations
- K38 health and safety guidelines governing work in excavations
- K39 safe procedures for handling the range of excavation equipment
- K40 safe procedures for handling hazardous materials
- K41 accident recording and reporting procedures
- K42 the range and use of personal protective equipment used in excavation works
- K43 main industry procedures and practices for excavation work including environmental, organisational, regulatory, emergency, operational, Health, Safety and Environment compliance, company procedures and risk assessments within the remit of the job holder's responsibility.
- K44 how to recognise situations that could be, or become, a confined space and how to deal with them effectively
- K45 the roles and responsibilities of persons within the site or highways operations team
- K46 site management structures for site or highways operations
- K47 the importance of referring to designated persons, problems that are

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- outside the area of the job holder's responsibility
- K48 procedures for reporting and recording job progress, problems, deviations to work programmes
- K49 methods and principles of excavation support systems, including timber, sheeting, mechanical systems
- K50 materials for excavation support systems, including timber, metal sheet.
- K51 circumstances where excavation support must be installed
- K52 excavation support systems for different excavation depths and soil types
- K53 excavation support systems for excavations that may be subject to subsidence
- K54 causes of instability in excavated areas, including soil types, presence of ground water, leaks from water and drainage pipework
- K55 situations where excavation pumping systems may have to be used
- K56 environmental considerations to be taken into account when disposing of trench water
- K57 hazards that could arise from working in excavations without natural or assisted ventilation
- K58 hazards arising from leaks or damaged supply apparatus
- K59 hazards associated with damage to electrical apparatus
- K60 situations where atmosphere monitoring equipment could be used
- K61 design and use of atmosphere monitoring equipment
- K62 consequences for the safety of the workforce, supply apparatus, other sub-structures, job progress and cost if the integrity of the excavation is not maintained

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Additional Information

Behaviours

Behaviour which underpins effective performance

You work in a manner in which you:

1. are vigilant to possible risks and hazards
2. treat people with civility

Glossary

Supply apparatus -the supply apparatus for utilities and other agencies, above and below ground services, built structures, and the natural environment (e.g. foundations, tree roots, natural watercourses)

Surface and sub-surface -flexible, composite, rigid and modular pavement construction, verge, natural ground

Approved procedures and practices –environmental, statutory regulatory, emergency, operational, health and safety, organisational and company procedures, and risk assessments.

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