



This version of this unit replaces all previously published versions with effect from January 2012. This unit should be used by all learners registering for qualifications that include it in their structure from this date.

Unit title:	Supervising tunnelling activities in the workplace
Unit reference number:	T/503/0132
QCF level:	3
Credit value:	12
Guided learning hours:	40
Start date:	January 2012

Unit summary

The aim of this unit is to develop the skills, knowledge and understanding required to confirm competence in supervising tunnelling activities in the workplace, within the relevant sector of industry.

Assessment requirements/evidence requirements

This unit must be assessed in a work environment, in accordance with:

- The Additional Requirements for Qualifications using the title NVQ in QCF
- The ConstructionSkills' Consolidated Assessment Strategy for Construction and the Built Environment.

Assessors for this unit must have verifiable, current industry experience and a sufficient depth of relevant occupational expertise and knowledge, and must use a combination of assessment methods as defined in the Consolidated Assessment Strategy.

Workplace evidence of skills cannot be simulated.

Assessment recording

This unit is assessed in the workplace. The table on the following pages shows the learning outcomes and the assessment criteria for this unit. The table includes space for learners to enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centres can use their own documentation.

Learning outcomes and assessment criteria

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date
<p>1 Carry out supervision activities of tunnelling activities to given working instructions which will minimise disruption and maintain optimum performance.</p>	<p>1.1 Undertake supervision duties to given working instructions for two of the following tunnelling activities:</p> <ul style="list-style-type: none"> - mobile plant and machinery operations - back up services installation, operation, maintenance or removal - spoil removal - access equipment erection, maintenance or removal - pipejacking operations - micro tunnelling operations - excavation and installation of supports - shaft and tunnel construction - tunnel transport - spraying concrete lining - operating separation plant - temporary works - lifting loads. 			

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date	
	1.2	Explain how programmed tunnelling activities should be supervised and carried out.			
	1.3	Explain how disruption to other works and the following people can be minimised during tunnelling activities: <ul style="list-style-type: none"> - workforce - other personnel on site - members of the public - occupiers - site visitors - people affected by on-site operations. 			
	1.4	Explain different methods that can effectively optimise and maintain work performance during tunnelling.			
	2	Observe current legislation and official guidance appropriate to the work environment for protection and safety.			
	2.1	Protect the workforce, the general public, visitors and the environment by the applying information relating to three of the following: <ul style="list-style-type: none"> - methods of work - tunnel access arrangements - risk assessment - safe use and storage of tools - safe use and storage of materials - traffic management - emergency plans. 			

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date
<p>3 Identify and assess defects and problems, and recommend and implement corrective action which conforms to safe working methods and practices.</p>	2.2	<p>Explain the current legislation and official guidance that applies directly to tunnelling activities for protection and safety.</p>		
	3.1	<p>Observe and evaluate preparation and work activities against given requirements and methods of work to identify tunnelling defects and problems.</p>		
	3.2	<p>Apply corrective actions that follow safe working methods and practices to deal with three of the following tunnelling defects and problems:</p> <ul style="list-style-type: none"> - limitations of design choices - construction errors - identification of further utilities - heritage concerns - environmental concerns - incorrect maintenance - identification of hazardous materials - breaches of security - changes in ground conditions. 		
	3.3	<p>Describe types of common defects and problems that can occur with tunnelling activities.</p>		

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date
	3.4	Explain methods that can be used to assess and identify potential tunnelling defects and problems.		
	3.5	Explain how to make recommendations and implement the following corrective actions, in accordance with safe working methods and practices, for identified tunnelling defects and problems: <ul style="list-style-type: none"> - redesign - reconfigure - restrict - redirect - repair - replace. 		
4 Keep accurate records of work progress and quantities involved.	4.1	Set up recording systems, following organisational procedures, that detail work progress checks and the defects and problems, corrective actions taken and quantities involved.		
	4.2	Explain the methods that can be used to keep accurate records of tunnelling work progress which can detail the checks made, defects and problems, corrective actions taken and quantities of resources used.		

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date
5	<p>4.3 Give reasons why accurate records should be kept.</p> <p>5.1 Identify the necessary resources for three of the following tunnelling activities:</p> <ul style="list-style-type: none"> - mobile plant and machinery operations - back up services installation, operation, maintenance or removal - spoil removal - access equipment erection, maintenance or removal - pipejacking operations - micro tunnelling operations - excavation and installation of supports - tunnel construction - shaft and tunnel construction - tunnel transport - spraying concrete lining - operating separation plant - temporary works - lifting loads. 			

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date
	5.2 Select and/or acquire and maintain four of the following resources associated with relevant tunnelling activities: <ul style="list-style-type: none"> - people - plant, equipment or machinery - materials and components - sub-contractors - information - work area and facilities - waste management - utility providers. 			
	5.3 Explain different ways that the necessary resources for tunnelling activities can be identified.			
	5.4 Explain how resources can be assessed for quality and how to maintain the necessary resources for tunnelling activities.			

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date
<p>6 Comply with the given contract information when supervising tunnelling activities to carry out the work efficiently to the required specification.</p>	<p>6.1 Undertake supervision duties of activities to form tunnels to given working instructions in one of the following occupational areas:</p> <ul style="list-style-type: none"> - hand miner - shaft miner - tunnelling machine operator - machine tunnelling operative - spoil removal equipment operative - tunnel services operative - tunnel transport operator - tunnel fitter's mate - tunnel electrician's mate - sprayed concrete lining tunnelling operative - pipejacking operative - micro-tunnelling operative - separation plant operative - specialist tunnelling occupations. 			

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date
	<p>6.2 Describe how to apply safe work practices, follow procedures, report tunnelling defects and problems and establish the authority needed to rectify them, relating to the supervision of the following methods of work and materials used for:</p> <ul style="list-style-type: none"> - booking in and out of tunnels - setting out lines and templates for shaft and tunnel excavations - excavation of tunnels using different methods (by hand, machines, segments, sprayed concrete lining and by pipejacking) - installing, using and moving permanent tunnel support and service systems - installing, using, moving and removing temporary tunnel support and service systems - installing, moving and removing spoil removal systems - dealing with ground water and de-watering methods 			

Learning Outcome	Assessment Criterion	Evidence type	Portfolio Reference	Date
	<p>6.3 Describe how to apply safe work practices, follow procedures, report tunnelling defects and problems and establish the authority needed to rectify them, relating to the supervision of the following methods of work and materials used for:</p> <ul style="list-style-type: none"> - signalling the movement of loads, vehicles and machinery - working with tunnel and shaft transport systems - using hand tools, power tools and equipment - working at height - using access equipment. 			
	<p>6.4 State the needs of other occupations and how to effectively communicate within a team when supervising tunnelling activities.</p>			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(if sampled)