Scheme rules – Appendix O Tunnelling Safety Training Scheme (TSTS)

TSTS 2024

Site Safety Plus

Tunnelling Safety Training Scheme (TSTS)

Scheme rules – Appendix O

1. Introduction

The *Tunnelling Safety Training Scheme* (TSTS) is a one-day awareness-level course designed to introduce delegates to health and safety in the tunnelling environment. Delegates will learn how to be aware of the hazards and risks associated with a tunnelling environment and common tunnelling methods. This course is purely theoretical in its delivery and assessment.

2. Purpose and scope

2.1. Purpose

To ensure that the delegates gain an understanding of:

- the health, safety and occupational health hazards, risks and controls in the tunnelling environment
- managing safe and healthy working environments
- the processes and procedures in place to manage safe working practices
- how tunnels are constructed, and the operations conducted within the construction phase and their impact on the environment.

2.2. Scope

The TSTS course has the following objective.

Delegates will gain an awareness of:

- tunnelling-related confined spaces
- shaft and surface operations
- tunnel construction
- tunnelling plant and equipment
- control of underground plant during tunnelling operations
- emergency arrangements for tunnelling
- occupational health, first aid and underground personal protective equipment.

3. Entry requirements

There are no formal entry requirements for this course. However, we would *recommend* that delegates have achieved one, or more, of the following:

- six months' experience in a construction environment
- completion of the Health and Safety Awareness course
- completion of the Health, safety and environment test for Operatives.

4. Delegate numbers

The recommended minimum number of delegates per course is four and the mandatory maximum delegate per course is 20. For remote delivery the recommended minimum number per course is four and the mandatory maximum is 12. Should numbers drop below the mandatory minimum numbers once the course has commenced, the course may continue. To preserve learner participation, it is mandatory that the course is delivered to a minimum of three delegates. Please refer to the QA requirements for further information.

5. Course duration and attendance

This is a one-day course. Delegates must attend the full course, lasting a minimum of seven hours (which includes course delivery and examination but **not** an examination re-sit), to be eligible for certification. This does **not** include breaks. Please refer to page 4 of the *Principal Scheme Rules* for information on course duration. Delegates who are unable to attend part of the course due to extenuating circumstances may re-enrol on a new course.

For certification purposes, and to avoid any ambiguity, the full day's course must be attended. For example, if a delegate becomes ill and does not complete the full day, they must start the course again in full. In cases of certified illness, bereavement, or other qualifying extenuating circumstances where more than 30 days are required to complete the course, delegates should refer to Section 94 of the QA Requirements. This section allows an extension of 90 days for certified illness. Delegates must provide evidence for any extenuating circumstances as outlined in the QA Requirements. To be awarded certification, delegates must complete the full course, pass the trainer review (where applicable), and pass the end-of-course assessment.
Please refer to the quality assurance (QA) requirements for information on what to do in extenuating circumstances.

6. Course materials

Scheme of work	**Mandatory**
Lesson plan template (blank)	**Optional**
Course presentation	**Mandatory**
Trainer reference	**Mandatory**
Delegate pack	**Mandatory**
Course exercises	**Mandatory (eight exercises)**

Key information

- A scheme of work document is available to each training provider. This details the learning outcomes, assessment criteria, notes for guidance, reference and support materials available for the course. It is mandatory for it to be used to assist with lesson planning, so that all learning outcomes are met in the delivery of the course.
- Training providers can access the supporting materials online in CITB's secure area.
- Training providers can also use additional support materials to meet the delegates' needs, provided that the aims and learning outcomes of the course are met.
- The TSTS presentation has been developed as a standardised delivery tool. Trainers that deliver the course must ensure that content contained within the course presentation is covered. All content and associated notes in the presentation is designed to enable delegates to meet the learning outcomes associated with the course, and therefore may be assessed.
- The trainer must review the trainer reference prior to course delivery. The trainer reference includes information on mandatory exercises, suggested timings, the British Standard, the course presentation and the delegate pack.

6.1 Course workbook (delegate pack)

The TSTS delegate pack has been created to support the scheme of work and course presentation. It provides the delegate with an overview of key information covered in the course and provides space for delegates to complete all mandatory course exercises.

The premise of the delegate pack is to guide delegates through the material in a systematic way and break down the course into manageable sections. This makes it easier for the delegate to follow and understand the content alongside the course presentation. The pack encourages reinforcement of learning, containing exercises and knowledge checks that help delegates to practise what they have learnt. Active engagement reinforces knowledge and aids retention.

The delegate pack also contains knowledge checks that enable delegates to assess their understanding of the material and help identify areas where further clarification may be required. It also contains supplementary material, such as signposts to further reading and resources.

As part of the assessment for TSTS, trainers are required to complete a trainer review for each delegate, to assess whether they are eligible to complete the end-of-course assessment. The delegate pack must be used to help the trainer assess whether each delegate has engaged with the course sufficiently, and whether they are therefore eligible to sit the end-of-course examination.

The trainer must provide a printed copy of this to each delegate before or at the start of the course, and it will be retained by the delegate upon completion of the course. For both face-to-face and remote delivery methods, delegates must be given a copy of the delegate pack.

6.2 Course presentation

This course includes a mandatory presentation to support delivery. Centres that have been approved to deliver this course may access and download this from the trainer portal.

The following changes are permitted:

- Slide text may be added to, but **not** removed.
- Images or videos may be substituted, if they fulfil the same learning outcome and have the required permission(s) for use in a classroom environment.

All slides **must** be delivered, except for the following:

- The knowledge checks at the end of each section, which are optional. Trainers are encouraged to provide time for delegates to complete any knowledge checks prior to sitting the end-of-course assessment. They are designed to help the delegate assess their knowledge and identify any potential gaps in knowledge.
- Slides 84, 85, 86 or 87, where trainers must deliver at least one of these case studies to explore the importance of emergency drills, safety equipment, communication, ventilation and warning systems.
- Additional slides (102 through 105), which offer a 360-degree image of tunnel-related construction environments and activities. Although these are not mandatory, you may choose to utilise them where appropriate.

6.3 Recommended reading/website resources

This course refers to the BS 6164:2019 *Code of practice for health and safety in tunnelling in the construction industry*. It is not necessary for delegates to have a copy of this publication for the course, but it is the foundation of all the material that appears in it. The course presentation

makes links clear to the relevant sections of BS 6164:2019, should delegates wish to complete any further reading. A detailed list of further reading and website resources is included in the delegate pack.

6.4 Exercises and interaction with delegates

There are eight mandatory exercises, which must be completed during the course.

7. Learning outcomes

Delegates taking this course should be able to achieve all the learning outcomes listed below by the end of the course.

Learning outcome 1 – What is involved in tunnelling?
Know the environment, plant and equipment, methods and ground types associated with tunnelling.

Learning outcome 2 – Hazards, risks and controls in tunnelling activities
Know the hazards, risks and controls involved in tunnelling.

Learning outcome 3 – Safe working practices
Know safe working and emergency practices associated with tunnelling activities and environments.

A full list of learning outcomes, learning objectives and assessment criteria is available within the accompanying scheme of work.

8. Assessment

Successful completion of the course requires:

Completing mandatory exercises	Eight mandatory exercises
Passing the trainer review	Mandatory
Passing the end-of-course examination	Mandatory

Successful delegates will be issued with a certificate, which is valid for three-years.

8.1 Trainer review

The trainer review provides a pass or fail based on the delegate's performance and engagement in the course exercises, and engagement in the course overall. Further details are provided in the trainer reference.

The trainer review must be completed before the end-of-course examination. If a delegate is assessed as having failed the trainer review, then they are not permitted to sit the end-of-course examination.

8.2 Examination paper

The paper consists of 25 multiple-choice questions selected by CITB, covering all aspects of the course. This examination paper must be taken at the end of the course, and is a closed-book

exam. Each question is worth one mark; no half marks are available.

The examination paper number will be notified when the course booking is accepted by CITB. The examination pass mark is 80% (20 out of 25 marks).

The examination lasts for 30 minutes, and must be completed within this time under examination conditions. The examination is **closed** book, and delegates are not permitted to use any course material during the examination.

The examination paper forms part of the overall assessment of whether the delegate has successfully achieved understanding of the course contents.

8.3 Re-sits procedure

A delegate may re-sit the examination one further time if they have:

- completed the mandatory eight course exercises
- passed the trainer review
- gained at least 64% (16 out of 25 marks) in the examination.

For avoidance of doubt, where a delegate scores less than 64% (<15 or out of 25 marks) in the final examination, the delegate is not eligible for a re-sit and must attend the full TSTS course again.

If a delegate fails the initial course examination, a re-sit may be offered on the same day, provided the delegate agrees and is given adequate time to prepare.

If the delegate does not agree to re-sit the examination on the same day and requires additional preparation time, they may attend the final day of another course during the examination period, or attend a standalone course, within a 30-day period. The delegate is not required to re-do the whole course.

The re-sit may be conducted either face-to-face or in a remote setting.

If a delegate fails the re-sit by not achieving 80% (20/25 marks) or more in the examination, they must take the TSTS course again.

The training provider must make the arrangements with the delegate and ensure that the same examination paper is not used twice.

A charge may be made to the delegate, however; this fee is left entirely to the discretion of the training provider. The training provider may also recover additional costs from the delegate, which should be agreed in advance. Subsequent arrangements will be at the delegate's own expense.

9. Remote delivery

CITB permits the TSTS course to be delivered as a face-to-face course or remotely via your chosen video technology. The training must follow the scheme of work and deliver the same standard of training, meeting all scheme rules unless exceptions or amendments exist in this section.

9.1 Access for QA team

The facility to monitor the delivery of any remote training must be made available to our QA team for every remote course. The SSP QA team must be invited to attend **every** remote course being delivered. All links to attend should be sent to **quality.assurance@citb.co.uk**.

9.2 Delegate numbers

For a remotely delivered TSTS course, the recommended minimum number of delegates per course is four. The mandatory maximum number of delegates per course is 12.

9.3 Course duration and attendance

The course duration for TSTS remains the same. However, due to the delivery method, the course may be spilt into two sessions. These spilt sessions must be completed over two consecutive days. In accordance with the QA requirements, delegates must complete the full course to be eligible for certification.

9.4 Technology

Where a course is delivered remotely, the trainer may choose a suitable technology that allows for the course to be delivered in its entirety. At no point should the difference in delivery method disadvantage the delegate's training experience or gaining of knowledge. The chosen technology must not be a barrier to delegate interaction or collaboration.

9.5 Course exercises

The mandatory exercises must be delivered in full.

- Delegates must be encouraged to make the same levels of interaction that would be expected in a face-to-face setting – e.g. group exercises and discussions.
- Delegates must have access to the support material required to complete each exercise.

9.6 Examination

An alternative examination method is in place for any TSTS course that is delivered remotely. Due to the nature of the examination questions, it is compulsory to use an online examination tool. Classmarker or Microsoft Forms are recommended by CITB for online assessment. Any other online examination solution must be referred to CITB for approval prior to use, or examinations will be invalid. In these circumstances, please contact **quality.assurance@citb.co.uk**.

Identification must be checked prior to the examination starting and recorded on the course results form (remote training version). During the examination, the trainer may invigilate a maximum of **six** delegates. If a course is delivered with more than six delegates, either two examination sessions must be conducted, or two invigilators must assess one examination. Each delegate must always be visible via video.

Exam material retention should be kept as outlined in the QA requirements document.

All other exam conditions apply as stipulated in Section 8.

10. Trainer requirements

In addition to the basic trainer prerequisites outlined in the SSP QA requirements, trainers **must** have completed and obtained certification from the TSTS course. They **must** also possess a current certificate, and hold at least **one** of the following competency qualifications:

- Level 4 Tunnelling NVQ Diploma in Construction Site Supervision (Construction)
- Level 3 NVQ Diploma in Tunnelling Operations – Tunnel Boring Machine Operator (Construction)
- Level 2 Tunnel Entry and Associated Emergency Procedures (TEEP) (6151-02)
- Level 2 NVQ in Tunnelling Operations.

Other suitable L2 NVQ qualifications in tunnelling operations are listed under additional competency qualifications in the section below.

10.1 Verifiable experience

With a CV, trainers **must** evidence a minimum of **three** years verifiable experience in the tunnelling construction industry*. Verifiable experience means vocational experience gained within the tunnelling construction industry that demonstrates knowledge and understanding of the subject areas delivered in the TSTS course.

To deliver this awareness level course, experience should be gained via a broad range of tunnelling methodologies, from tunnelling construction projects or roles that clearly demonstrate *engagement* with tunnelling construction activity. Evidence of experience gained in tunnelling construction projects or roles must be provided to verify trainer competency. This includes regular engagement with the roles and responsibilities associated with below-ground tunnelling construction activities.

The training centre should complete due diligence checks on each trainer to establish that the trainer has verifiable experience that would allow them to deliver the TSTS course content. The training centre may wish to use the sample interview questions and due diligence guidance document available on the trainer portal.

*CITB will review a CV as part of the approval procedure for both centre and trainer.

In addition to the above verifiable experience, trainers **must** hold **one** of the following health and safety qualifications:

- NEBOSH National Certificate in Construction Health and Safety.
- NEBOSH Health and Safety Management for Construction.
- NEBOSH Diploma in Occupational Safety and Health.
- Level 4 Health and Safety Management for Construction (UK).
- NEBOSH National Diploma in Occupational Health and Safety.
- Diploma Safety Management Level 6.
- NCRQ in Occupational Health and Safety level 6.
- Any NEBOSH, Health and Safety Diploma or degree-level health and safety qualification attained via a higher or further education or national vocational qualification route would also be acceptable.
- Site Management Safety Training Scheme (SMSTS).

10.2 Occupational competence and experience

For TSTS, trainers are not required to hold three years of occupational experience in a construction management role, as outlined in section 34 of the QA requirements, and therefore section 34 does not apply.

10.3 Additional competency qualifications

Any of the following qualification pathways at level 2 or above:

- Hand mining
- Shaft miner
- Tunnelling machine operator
- Machine tunnelling operative
- Spoil removal conveyor operative
- Overground spoil removal conveyor operative
- Tunnelling operative
- Tunnel transport operator
- Tunnel fitter's or tunnel electrician's mate
- Sprayed concrete lining tunnelling nozzleman
- Pipejacking, box jacking or micro-tunnelling machine operator
- Separation plant operative
- Tunnel-boring machine operator (level 3 or 4).