



Safety, Health, and Working environment on construction sites

This brochure contains rules that are discussed in Jernbaneverket's (the Norwegian National Rail Administration) safety course and describes how you should act in relation to your safety and working environment and that of your colleagues when working on our construction sites.

Contents

1. Introduction.....	3
2. Safety, health and working environment.....	4
3. External environment.....	11
4. Emergency preparedness.....	12
5. Safety when working on or near track.....	14
6. Working near high voltage installations.....	17
7. Tunnels.....	19
8. Summary.....	21

1. Introduction

Jernbaneverket actively works to prevent harm to people, materiel and the environment. Everyone must contribute in order to achieve this.

Working on a construction site entails risk. Therefore, it is important that your own safety and the safety of your work and colleagues are taken seriously. Remember that focusing on this means a safer workplace for you and those around you.

Everyone who works on our construction sites has to take a safety course.

The course enables you to work on and near track in accordance with instructions issued by the principal/local site safety man and/or electrical safety supervisor.

It is important that any accidents that occur are reported, regardless of wheter they are major or minor accidents. Just as important is that the events leading up to accidents are reported. These reports will be used to improve your working environment and the working environments of others in the future.

*Competent professionals take the initiative
and think safety. health and working environment*

2. Safety, health and working environment

The requirements relating to working environments are set out in the Working Environment Act (WEA) and associated regulations. The most important of these regulations are the Internal Control Regulations and the Construction Client Regulations.



The WEA is intended to secure a working environment that ensures complete protection against harmful physical and psychological impacts.



The Internal Control Regulations instruct all companies to carry out systematic health, safety and environment (HSE) work. The regulations apply to all activities covered by the Working Environment Act, etc.



The Construction Client Regulations impose duties and obligations on the client to ensure that safety, health and working environment (SHW)¹ are addressed right from the start of the project.

The regulations apply to every work site on which temporary or mobile construction work is carried out.

¹ The new Construction Client Regulations that apply from 01.01.2010 clarify the roles and obligations of the various actors in the construction process, and at the same time changed the term used from HSE to SHW

Actors



Client is any natural or legal person for whom a construction project is carried out. The client is responsible for ensuring a proper working environment on the construction site.



Coordinator in the project planning phase involves coordinating the project planning in a way that ensures safety, health and working environment are addressed and ensures the preparation of a SHW plan.



Coordinator for the construction phase/execution

- Follows up risk elements in the clients SHW-plan.
- Ensures the timetables that are drawn up allow sufficient time for the execution of the various work operations.
- Ensures that employers and self-employed people implement the SHW plan.
- Coordinates the work of employers and self-employed people that could affect each other with respect to SHW work, including cooperation between employers and self-employed people.
- Ensures that employers ensure compliance with the requirements in section 9 of the Construction Client Regulations.
- Ensures that overview lists are kept, cf Section 15 of the Construction Client Regulations.



A contractor executes work on behalf of the client pursuant to a contract. Contractors are responsible for ensuring a proper working environment on the work site.



A subcontractor (SC) executes parts of the work on behalf of a contractor. SC are responsible for ensuring a proper working environment within their part of the work on the work site.



Employees have an obligation to comply with the stipulated safety instructions and routines.



A safety deputy must be chosen from among the employees and provided with the necessary training. Safety deputies are authorised to halt work if it represents a danger to life or health.

Principal undertaking

When there is more than one employer on the construction site, a principal undertaking must be nominated. When work is taking place near track, Jernbaneverket is normally always the principal undertaking.

The principal undertaking is responsible for ensuring a completely safe working environment by coordinating internal control systems and all SHW activities.

Regardless of whether your company is a client, contractor or subcontractor, everyone is responsible for ensuring a completely safe working environment, both for their own and others' employees.

Sanctions

Normal sanctions in the event of breaches of the SHW rules are:

- Verbal warnings
- Written warnings
- Ejection from the site

Serious contraventions can result in ejection from the site even for first offences.

Safety inspections



Safety inspections are inspections intended to monitor that the construction site complies with the stipulated SHW requirements.

Safety inspections:

- must be conducted regularly.
- shall focus on dangerous situations.
- are a management responsibility.

Coordinated safety inspections must be conducted under the auspices of the principal undertaking when there is more than one contractor on the construction site.

Personal protective equipment

Thinking and due care will take you far, but nonetheless personal protective equipment is an absolute necessity.

One rash moment can result in an injury that could affect you for the rest of your life.

*Personal protective equipment is available for your safety.
Use it!*



Helmets

Always check your helmet before using it. Helmets older than 5 years old *) or which have been subjected to impacts or electric shocks must not be used.

*) The production year is written on the inside of the helmet. The protector helmet has a round label with a number at the bottom or on the side. For example: 02 indicates that the helmet was produced in 2002.



Hearing protection must always be used when performing noisy work. You must be able to hear normal conversations at a distance of 1 metre.



Eye protection must be used when working with tools or doing work that entails a risk of splashing. Normal glasses are not permitted.



Safety harnesses must be used when working at elevations higher than 2 metres above the ground and on the outside of approved guard rails.

The use of other equipment in addition to the normal equipment may be made mandatory, e.g. in connection with the use of products that must be labelled.

In such cases an HSE datasheet must be available that provides information about the products' use and storage, as well as the necessary protective equipment.

**HSE datasheets must be stored in the same place
the substances are stored and used.**

Working at heights

Scaffolding taller than to metres must always have:

- Guard rails
- Knee rails
- Footrails

The green sign must be hung at each access point to the scaffolding.

Ladders must not be used as work platforms unless no other solutions are possible. If you are working on a ladder, the ladder must be secured against slipping or tipping over.

Working at heights - Remember to secure yourself!

Construction area requirements

Barriers in the construction area must be respected by those working on the site.

Working in trenches

Working in trenches is often associated with danger.

- Trenches must be secured both during work and before leaving the work site.
- Excavated trenches deeper than 2 metres must utilise 1:1 excavation and/or shoring.

Welding/hot work



When performing welding or other work that involves a naked flame or sparks it is particularly important to comply with the safety regulations.
Use a welding mask.

Everyone who carries out welding/hot work on our sites must be certified.

Safe Job Analysis (SJA)

SJAs must always be carried out to reveal risk factors in connection with risky work or especially demanding work operations that are not covered by normal procedures.

Undesirable events

Everyone is responsible for reporting undesirable events.

Reporting near accidents and/or the events leading up to accidents will help us eliminate risk factors associated with the work and prevent chain reactions that could result in serious accidents/death.



3. External environment

Dust, noise and vibrations

Most local authorities issue their own guidelines for construction activities out of consideration to the general public. For example, the regulations regulate how and when noisy work can be carried out.

Discharges

Precautions must be taken to prevent discharges of environmentally harmful substances:

- Safeguard against leaks from fuel and oil stores.
- Oil absorbents must be kept on all machines and be easily accessible so any leaks can be mopped up.

Waste

All waste must be sent to approved waste recipients for recovery.

Hazardous waste must be handled in accordance with specific requirements.

In the event of discharges, the local fire service must be contacted by calling 110

4. Emergency preparedness

Emergency preparedness plans must be drawn up for all larger sites. These show what you should do in the event of an unforeseen event or accident.

The emergency preparedness plan must include:

- Instructions on alerting people, plus an overview of who does what.
- Information about where to find first aid equipment.
- You need to stay calm and provide the following information when reporting accidents (Who, What, Where, When)
- **Who** you are
- **What** has happened
- **Where** it happened
- **When** it happened

Fire service	110
Police	112
Ambulance	113

Also state which telephone number you are calling from!

Study the emergency preparedness plan carefully. This will ensure you are prepared in case anything happens.

In the event of accidents

If you are the first to arrive on the scene of an accident, you must provide first aid. You must act calmly and decisively, and delegate tasks to others who arrive on scene.

Prioritised tasks

- Secure the scene of the accident. Assess its scope and the need for help.
- Ensure the emergency services are alerted (110, 112, 113).
- Ensure someone will meet the emergency services and guide them to the scene.
- Ensure any crew are evacuated out of tunnels or to rescue chambers.
- Try to limit damage, but without putting yourself or other personnel at risk.

Accidents near track

Train management must be notified in the event of accidents that occur in the proximity of track or affect/involve train operations. This is normally done via the principal/local site safety man.

You should help the injured without putting yourself or others at risk!

5. Safety when working on or near track

This course enables you to move and work on and near track in accordance with the principal/local site safety man's instructions.

Risk factors

All work and movement on and near trafficked track entails some risk. The most important risk factors are:

- Collisions between people/machines and trains or other types of rolling stock.
- Blockage of or damage to trafficked track, e.g. due to blasting, excavation, etc.
- Contact with/touching the contact line network, which is a high voltage system.

Important points for you to remember:

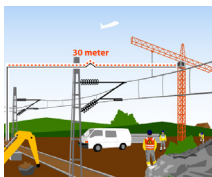
- Trains can approach quickly and almost silently.
- It can take more than 1 km for a train to stop.
- Extra trains can approach without warning and at great speed.
- Noise from work machines, etc can drown out the sound of approaching trains.
- Never just rely on your own hearing.

All excavation that could weaken track stability, regardless of distance, requires Jernbaneverket's approval before digging commences.

The distance to high voltage installations must be decided in each case by the electrical safety supervisor.

Important precautions

Never touch loose cables!



- Before excavation commences an excavation permit must be obtained and the location/routes of cables determined.
- Cranes or tall machines must not be parked or used closer than 30 metres to the railway track.
- The electrical safety supervisor decides whether or not machines and equipment must be earthed.
- Blasting work must not be carried out without permission from the principal/local site safety man.
- The principal/local site safety man is responsible for ensuring the track is inspected before traffic is allowed to use it.
- Being near to or moving along track is not permitted without the principal/local site safety manager being present.

When a train approaches you must:

- Stand well away from the track.
- Turn to face the train.
- Indicate to the train driver that you have seen the train.

The principal/local site safety man is responsible for safety on work sites near trafficked track. Site safety men wear special vests (see illustration).



Safety vest: principal site safety man (front/back)



Safety vest: local safety man (front/back)

The electrical safety supervisor

is responsible for safety in relation to the contact line network, which is a high voltage system. Electrical safety supervisors wear special vests (see illustration).



Safety vest: electrical safety supervisor (front/back)

Combination vests

are used in those cases where the same person is responsible for both functions at the same time (see illustration).



Combination vest (front/back)

6. Working near high voltage installations

The contact line carries 15 000 Volt and can cause serious injury.

Safety distance

It is important to know the safety distance when working in and near high voltage installations. The safety distance is defined here as the closest distance you can be to live installations.

The safety distance (“here, but no closer”) is decided by the electrical safety supervisor.

If work is going to be carried out without the current being turned off or the work is going to take place on and close to track, the most important things to remember are:

- Cranes must not be operated, used or parked closer than 30 metres unless special permission has been obtained.
- Machines with lifting equipment must be blocked off or locked in place, or some other acceptable measures implemented, such that they cannot come into contact with live installations.

There are two main ways of working near high voltage installations:

- The work is carried out with the current turned on.
- The work is carried out with the current turned off.

Only the electrical safety supervisor can connect copper conductors to machines and rails. All machines that are less than 5 metres from the mid point of the track must be earthed to the rails, ref. Technical Regulations.

The electrical safety supervisor can decide that machines have to be earthed at other distances and in other circumstances.

Damage to electrical installations

If you discover damage to an electrical high voltage installation or you see something abnormal, report it immediately.

Always assume you are the first person to discover the damage.

7. Tunnels

Tunnels and other chambers inside mountains can often be confined, dark and damp. Dust and noise can also have negative effects.

A SHW plan must be drawn up and readily available to employees. This must contain the rules that apply for safeguarding safety, health and working environment.

The plan must contain information about:

- Emergency escape routes
- The use of rescue equipment
- Description of the procedures for emergency situations.

Access control



When new tunnels are being constructed, access control is a statutory requirement. This must show how many people are in the tunnel and where they are located. The aim of this is to ensure good control and an overview in the case of an emergency preparedness situation.

Light sources

Every work site must be adequately lit to protect life and health. Everyone should carry personal torches with them at all times because many light sources are temporary in nature.

Using vehicles

Traffic other than construction machines must be kept to a minimum in tunnels.

Parked vehicles must always:

- be parked well away with the front facing the emergency escape route.
- Have their parking lights on.
- Be turned off, i.e. not be stationary with their engines idling.

Machinery

The machines used in tunnels are large and restrict the operator's lines of sight. You must therefore never approach such machines before you are absolutely sure the operator has seen you. Ensure that such machines are always given the right of way in traffic.

Securing rock faces

It is important that areas in which rock faces are going to be secured or cleared are thoroughly assessed.

Clearance work must be performed from a safe place. It is important that no people are in the area where clearance work is going to take place.

Emergency preparedness

There must be enough escape masks for the entire crew in all vehicles and machines.

Rescue chambers must be established in tunnels during the construction period. The rescue chambers must contain enough equipment and be large enough to keep those working in the tunnels safe.

A plan showing the tunnel route must be posted in the canteen and common rooms. The following must be marked on such plans:

- Niches.
- Rescue chambers.
- Other rescue equipment.

8. Summary

Finally, it is important to stress that all orders issued by the principal/local site safety man must be fully complied with.

Always remember that the decisions you make today can affect you and your family for the rest of your lives.

Good luck on the construction site!

Revisjonsoversikt - Dok.nr. IUP-00-Q-00622

Rev. 00 Mars 2009:

Dokument opprettet.

Rev. 01 September 2009:

Korrigert skrivefeil, ny bestilling.

Rev. 02 Juli 2010:

Korrigert med hensyn til ny byggherreforskrift (1.1.2010), ny bestilling.

Desember 2010

Dokument oversatt til følgende språk:

- engelsk
- tysk
- polsk

Important information

Fire service	110
Police	112
Ambulance	113

JBV Emergency number.....

JBV Construction Manager.....

JBV Coordinator Execution.....

Immediate superior.....

Your safety deputy.....

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Published by Jernbaneverket Utbygging