

# **SECTION 3(8)**

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## **EXCAVATIONS**

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## **INTRODUCTION**

Most construction work involves excavations of various types. The main hazard associated with excavation work is ground collapse. No soil can be relied upon to support its own weight for any length of time, a factor which becomes increasingly important as additional loads are applied, such as those from plant and material, so the sides of any excavation must be regarded as likely to collapse at any time.

Even a minor collapse of ground can cause serious injury, as 1m<sup>3</sup> of earth weighs approximately 1.3 tonnes.

Excavations must not be undertaken in a casual way. Whenever any excavation work is undertaken it must be planned. The sides will need either temporary support or to be battered (sloped) back to a safe angle for the following reasons:

- (a) To safeguard employees working in the excavation.
- (b) To ensure safety to members of the public.
- (c) To safeguard adjacent property or services.

Competent advice must be considered before digging commences. This is generally the province of a specialist engineer or, in the case of minor works, at least an expert who has had experience of working with the particular type of soils being encountered.

## **LEGAL REQUIREMENTS**

The Construction (Health, Safety and Welfare) Regulations 1996 cover the safety of excavations.

### **Supervision**

- A competent person must supervise the installation, alteration or removal of excavation support.
- People working in excavations should be given clear instructions on how to work safely.

### **Inspections**

- A competent person must inspect excavations:
  - at the start of each shift before work commences,
  - after any event likely to have affected the strength or stability of the excavation and
  - after any accidental fall of rock or material.
- A written report should be made after most inspections.

## **PLANNING**

Before digging any excavation, it is important to plan against the following:

### **Excavation collapse**

- Prevent the sides and ends from collapsing by battering them to a safe angle or supporting.
- Do not enter into unsupported excavations.
- Do not work ahead of the support.
- Even work in shallow trenches can be dangerous and may require support.

**Materials falling into the excavations**

- Do not store spoil, plant or equipment close to the sides of the excavation, extra loading make the sides prone to collapse.
- Ensure the edges are protected against falling material. Use toeboards where necessary.
- Keep vehicles away from excavations. Use barriers.
- Use stop blocks to prevent vehicles from over running when tipping materials into excavations.

**People being struck by plant**

- Keep workers separate from moving plant.
- Plant operators should be competent.

**Undermining nearby structures**

- Make sure excavations do not affect the footings of scaffolds or foundations of nearby structures.
- The structure may need temporary support before digging starts. Advice of a structural engineer may be required.

**Avoiding underground services**

- Look for obvious signs of underground services.
- Use locators to trace any services.
- Ensure that the person supervising has service plans. Everyone should know about safe digging practices and emergency procedures.

**Access**

- Provide safe and secure ladder access.

**Fumes**

- Do not site petrol or diesel engine equipment in or near the edge of excavations, unless fumes can be ducted away.

**Protecting the public**

- Fence off excavations in public places.
- If children might enter the site out of hours, take precautions, ie: back-filling or securely covering.

**CHECKLIST**

The following points are a basic checklist for ensuring minimum safety standards in excavation work:

**Before work begins**

- Has sufficient material been made available on site to supply the needs of the support structure?
- Are details of the main underground services available and understood by all concerned with the supervision of the excavation? Services include gas, water, electricity, foul sewers, storm sewers, industrial water mains, telephone cables.

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- What type of plant is to be used, eg: cranes, excavators, and pumps?
- Are all the necessary barriers and warning notices available?
- Are all the necessary lighting requirements available?
- Is there sufficient room for spoil heaps (not within 1m of the excavation edge) or must the spoil be carted away?
- Are there sufficient trench ladders?
- Is there a need for trench bridges?
- Is there sufficient protective equipment and clothing available?
- Is there a need for hygiene testing of workplaces?
- Is there a competent person available to supervise the work?

**During the excavation**

- Has timbering been carried out correctly?
- Are all the workers aware of the position of the services?
- Are there any signs of the timbering becoming defective?
- Is pumping being carried out correctly?
- Are ladders being used for access and egress and not strutting?
- Are spoil heaps being kept clear of the excavations?

**REFERENCES**

Health and Safety in Construction HSG150

Protecting the public: Your next move HSG151

Construction (Health, Safety and Welfare) Regulations 1996

INDG220: A Guide to the Construction (Health, Safety and Welfare) Regulations