

Excavations

Every year, people are killed or seriously injured by collapses, or by falling objects and materials while working in excavations. Excavation work is a high-risk activity that can be affected by many diverse factors, such as rainfall, hot or extreme cold weather, adjacent structures, ground conditions and vibration.

Good planning and correct preparation is therefore essential in terms of setting up the work, and then safe working within excavations.

This guidance provides a holistic overview of factors to consider when planning excavations, setting up the work and safe working within them.



What to consider before excavation work starts

Before carrying out any excavations, the hazards and risks must be considered. These include the soil composition and depth, the type of excavation support that will be required and the emergency procedures/rescue plans.

It is important that the information detailed in the construction phase plan is referred to, as this will identify any hazards that may affect the excavation (such as underground services and adjacent buildings). The excavation's design must consider its location on site; the proximity of traffic routes, material storage and lay-down areas; and external factors such as the impact on neighbouring properties, public roads and spaces. Where necessary, make contact with utilities providers and local authorities at an early opportunity.

Arrange for appropriate surveys to be conducted with cable location devices (cable-avoidance tools (CATs)), signal generators (Gennys) and utility drawings to trace and identify any underground services that could be affected or damaged by the excavation (such as cables exposed by the installation of a trench box). Any services located should be clearly marked with spray paint and protected from damage.

Neighbouring structures or features that could affect the integrity of the excavation should be identified (such as watercourses, roads and railway lines, and archaeological impacts).

Any water discharges off site must be approved by the local environment agency or local authority, and where required and appropriate, permission and discharge to the foul sewer has been authorised. If discharging into watercourses or soakaways, an advanced discharge licence and suitable treatment may be required, which may involve the use of a settlement lagoon, tank or grassed area.

Essential points to consider

Safe system of work considerations

- Method statements and risk assessments for the task should identify all of the hazards, risks and control measures, and must be approved by a competent person. All workers must be briefed, and management should make sure that the workers understand the method of work, hazards and risks, and associated control measures.
- If appropriate to the activity, a confined space or underground services permit to work may be required.
- An emergency plan should be provided that clearly demonstrates how workers will be rescued from the excavation in the event of an incident, and communicated to all involved. Management should make sure that the workers understand what to do in the event of an emergency.
- Ensure that arrangements are in place to carry out regular inspections, as required by legislation.
- Ensure that a site traffic management plan is prepared and kept up-to-date to show the location(s) of the excavation(s), and that adequate lighting is provided in dark or foggy conditions.
- Make sure that the competence of workers has been verified to ensure that they have the requisite skills for the tasks to be undertaken, and that they have had confined spaces training.

Health considerations

- It is essential that:
 - workers are issued with appropriate personal protective equipment (PPE) and respiratory protective equipment
 - the excavation has been purged of any gases prior to workers entering
 - all hazardous substances have been identified as part of a control of substances hazardous to health (COSHH) risk assessment
 - soil sampling has been carried out to establish the presence of any contaminants.

Excavations *continued*

Environmental considerations

- It is important that the site layout is designed so that the excavation is not at risk from vehicle and plant movements around the site (such as surcharging the walls of the trench).

Other basic control measures that need to be checked:

- Checks are carried out to confirm that any unsupported ground is safe.
- Excavations have adequate support and shoring, or are benched or battered to prevent any potential collapse.
- Where a risk of flooding exists, cofferdams or caissons must be installed with pumps.
- Suitable barriers should be erected around excavations to prevent materials, plant, people or operatives falling in, and stop barriers should be installed to prevent plant or vehicles from going over the excavation edge.
- Spoil heaps and materials are controlled and stacked a minimum of 1 m from the edge of a trench that is 1 m deep.
- Poorly ventilated areas are continually monitored for the presence of gas.
- Ladders are provided and erected for safe access and egress at specific points of entry.
- Any site run-off is prevented from entering watercourses or surface water drainage, and – where possible – water is prevented from entering the excavation.
- Suitable warning signage, lighting and guarding are in place.

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