

# GLOSSARY

Acid mine drainage	Acidic water draining a mine or an area of land affected by mining, which is acidic as a result of the oxidation of pyrite (iron sulphide) to sulphuric acid.
Adit	A mine entrance tunnel, driven at a shallow angle, often in a hillside, and sometimes conveying drainage water from the mine.
Aerobic	Conditions under which oxygen is freely available.
Aggregate	Granular, inert materials which form a substantial part of concrete, asphalt <i>etc.</i> Examples include broken stone, gravel and sand.
Aggregates (soil)	Soil crumbs, composed of fine particles such as clays, held together by surface charge and/or soil polysaccharides and other organic molecules.
Air stripping	The process of enhancing the volatilisation of contaminants into the atmosphere from physical treatment of soils, groundwater and effluents.
Allowable bearing	The maximum allowable intensity of foundation pressure loading, taking into account bearing capacity, type of structure and limits on foundation settlement.
Alloy steels	Carbon steels to which various amounts of other metal elements, such as chromium and nickel, have been added.
Ammoniacal liquor	Spent scrubbing liquor from the coal carbonisation process, containing phenols and ammonia.
Anaerobic	Conditions under which gaseous and soluble oxygen is absent.
Angle of repose	Angle to the horizontal at which the sides of a heap of granular material will be at rest.

Anions	Negatively charged atoms or molecules. For example chloride ( $\text{Cl}^-$ ), sulphate ( $\text{SO}_4^{2-}$ ), carbonate ( $\text{CO}_3^{2-}$ ), nitrate ( $\text{NO}_3^-$ ).
Aquifer	Soil or rock that contains sufficient saturated permeable material to yield water in significant quantities.
Aromatic	Compounds related to benzene.
Artesian water	Hydrostatic pressure which occurs when water from pressure higher ground finds its way into permeable strata which have impermeable strata above and below. Artesian pressure may be sufficient to force water to the surface via a fissure or borehole.
Auger	A helically-shaped corkscrew-like tool designed to bore holes. The two types of earth auger are (a) the percussion type used in shell and auger boring, and (b) the helical screw type which may be power-driven or hand-operated.
Back stowing	Backfilling of underground workings with mine spoil.
Background concentration	The natural or normal concentration of a substance in the environment.
Batter	An artificial, uniform slope.
Bearing capacity	The bearing capacity of a soil is the foundation pressure which that soil is capable of supporting.
Bell pit	Method of mining using a bell-shaped pit comprising a vertical access shaft and enlarged workings at the base of the shaft (see Section 3.2.1).
Benthic organisms	Animals which live on the bed of river, lake or sea, at the solid-liquid interface.
Bentonite	A type of clay with a high affinity for water. Bentonite may be used to form an impermeable seal or barrier. Bentonite slurry may be used to support the sides of trench excavations, or as a lubricant for drilling.

Benzole	Crude benzene by-product of the coal carbonisation process.
Berm	A horizontal platform or ledge formed part way up a slope to improve stability or provide access.
Binder	Chemicals used to artificially stabilise contaminants within a soil or other contaminated matrix.
Bioaccumulation	The process by which certain substances are concentrated by living tissues so that they become present at higher concentrations in organisms further up a food chain.
Biodegradation	Microbially-mediated process by which enzymes sequentially degrade larger molecules to smaller ones, so altering both the chemistry and physical structure of a given substrate.
Bioengineering	The use of vegetation to perform an engineering function, such as erosion control or slope stabilisation.
Bioremediation	The use of microbial treatment methods to decontaminate soil and groundwater in a field situation.
Biosorption	The adsorption of ions to the surface of a microbial cell, or absorption into the cell.
Biotope	A small habitat within a large ecological community.
Biplanar slip	Slope failure involving shearing along two planes of differing orientation (see Figure 6.2(f)).
Blast furnace	A furnace used for smelting of iron ore to produce pig iron. Operates as a continuous process.
Bloomery	A furnace used for smelting of iron ore in a charcoal fire, now superseded by the blast furnace. Smelting was carried out as a batch process, and produced a mass of wrought iron known as a bloom.
Bored filter drain	Borehole drilled at a shallow angle to drain water from beneath an embankment (see Figure 6.4(c)).

Borehole	A cored hole, usually vertical, sunk to determine ground conditions or for the extraction of water.
Boring mill	Machine, usually water powered, used for boring large holes.
Break layer	A stratum of high permeability granular material within a containment layer, the purpose of which is to stop upward capillary movement of soluble contaminants.
Briquetting plant	Plant for producing blocks made from small pieces of coal.
By-product	Chemical residues arising as subsidiary products of a chemical industrial process <i>i.e.</i> products other than the primary products.
Cable percussion	Method of creating boreholes whereby an open-ended tube is driven into the ground by repeated lifting and dropping. Also known as 'shell and auger'.
Calorific value	The number of heat units obtained by the combustion of a unit mass of material.
Cap (shaft)	Structure placed preferably at rock level over a shaft to support the overburden above. Usually of reinforced concrete.
Carbon to nitrogen ratio	The ratio of carbon to nitrogen in a particular material. It is an indicator of the resistance of that material to decomposition (see Box 5.2).
Carbon steels	Steels whose properties are determined primarily by the percentage of carbon present. Carbon steels may, in addition to iron and carbon, contain small amounts of manganese, silicon, sulphur and phosphorus.
Carbonisation	Process by which coal is heated in oxygen-depleted conditions (ovens) to produce a carbonised product (coke), coal gas and various by-products.

Carcinogen	A substance which, when in contact with body tissues, can lead to the formation of a tumour or cancerous growth (carcinoma).
Casting pit	Area where the remelted iron or steel was cast into the finished product.
Cations	Positively charged atoms or molecules. All metallic elements form cations, as do certain molecules <i>e.g.</i> ammonia (cation: $\text{NH}_4^+$ ).
Chamaephytes	Woody or semi-woody perennial plants bearing their buds less than 250mm from the ground.
Clay	Fine-grained cohesive soil with particles less than 0.002mm in diameter.
Climax vegetation	The vegetation resulting from the complete process of ecological succession <i>i.e.</i> the successive change in vegetation composition after colonisation of a substrate.
Clinker	Incombustible residue from the burning of coal or coke consisting of fused ash.
Co-metabolite	Two or more substances that are metabolised by an organism when in association with one another.
Coal measures	Geological strata, consisting of beds of coal interstratified with shales, sandstones, limestones and conglomerates.
Coal preparation	Process by which coal is separated from non-coal materials present in the run-of-mine (see Run-of-mine).
Coal rank	Classification of coal according to carbon content.
Colliery spoil	The waste material produced during coal mining (see Section 5.3.1).
Competent rock	Sound rock strata capable of supporting shaft capping or other structures.

Composting	A process by which organic matter is aerated to allow a succession of microorganisms to degrade the organic residues to form compost; a partly degraded organic residue which may then be used as a soil conditioner.
Consolidation	A result of weathering and settlement whereby fine-grained particles fill the larger soil pore spaces, impeding drainage, aeration and root penetration.
Consolidation	Ground settlement resulting from consolidation due settlement to the weight of the overlying material and the dissipation of excess porewater.
Contaminated land	Land which contains substances (contaminants) which, when present in sufficient quantities or concentrations, are likely to cause harm, directly or indirectly; for example to humans, the environment or building materials.
Creep	Slow continuous downwards and outwards movement of soil materials on a slope.
Crest (of a slope)	Top edge of a slope.
Crown hole	Surface cavity resulting from the underground collapse of mine workings.
Culvert	A covered channel or large pipe for carrying a watercourse below ground.
Cupola	A furnace used to remelt pig-iron in the production of cast iron.
Derelict land	Land so damaged by industry and other development that it is incapable of beneficial use without treatment.
Desk study	The simple collection and collation of existing factual information.
Detection limit	The lowest concentration of a compound which can be analysed by a given analytical technique.

Differential	The difference in settlement between any two points settlement on a foundation or loaded area of soil.
Dip	The slope angle of geological strata relative to the horizontal.
Discard	The unwanted fraction from a mineral processing operation <i>e.g.</i> the material, consisting mainly of shales, remaining after recovery of coal from colliery spoil by washing operations.
Drainage blanket	Layer of free-draining material placed beneath an embankment (see Figure 6.5(a)).
Drawdown	A lowering of the water level in a lagoon or reservoir.
Drift	Mine tunnel driven at a shallow angle into a coal or mineral seam from a level ground surface.
Drift mining	Method of mining using inclined tunnels driven within the seam.
Dynamic compaction	Method of compaction of soil involving the repeated dropping of a heavy weight.
Earthworks	All on-site operations that relate to excavation, transport and deposition of soil or rock.
Ecotype	A genetic grouping within a species having specific characteristics or adaptations in particular ecological conditions.
Electrical conductivity	The ratio of electrical current flowing per unit cross sectional area of conductor to the applied electrical field. The electrical conductivity of soils and waters is an indicator the salinity of the soil or water.
Embodied energy	The energy required to produce a material.
End tipping	Placing of material by tipping from lorries or dump trucks.

Engine house	Building used to accommodate a steam engine or other power source.
Enzyme	A biologically produced protein catalyst that accelerates the conversion of one compound (or compounds) to another (or others).
<i>Ex situ</i> treatment	Decontamination treatment process applied to excavated soil or extracted groundwater in a batch system.
Exothermic	Accompanied by the evolution of heat.
Factor of safety (engineering)	Factor of safety for slope stability is the ratio of the resisting forces divided by the disturbing forces (see Box 6.3).
Finery	A type of forge used for decarbonisation of the pigs of iron to produce wrought iron.
Flame ionisation	An instrument which measures volatile organic detector (FID) compounds by burning them in a hydrogen flame, the electrical conductivity of which is measured by inserting two high voltage electrodes into the flame.
Flowslide	A water-borne movement of material, mainly in suspension, containing a proportion of water in excess of that required to fill the voids in the loose material.
Flue dusts	The particulate matter removed from the gas produced by a furnace.
Fluidised bed	A bed of solid particles which has the properties of a fluid, created by passing a fluid ( <i>e.g.</i> a gas) upward through the bed at sufficient velocity to separate the particles from one another so they are supported by the fluid.
Fly ash	Ash with a fine particle size produced from pulverised coal burned in power stations, or other organic residues in incinerations.

Foundation	<ol style="list-style-type: none"><li>1. The soil or rock upon which a building or other structure rests.</li><li>2. The structure of brick, stone, concrete, wood or steel which transfers the building load to the ground.</li></ol>
Foundry	A place where metals are remelted prior to further processing.
Framework directive	An EC Directive which sets out a framework for legislation on a particular subject, and which has effect via daughter directives setting out particular requirements.
Froth flotation	A process for separation of mineral particles which uses reagents which adhere preferentially to particles containing the desired mineral ( <i>e.g.</i> coal).
Galvanising	Coating of steel or iron with zinc. The zinc protects the iron or steel from corrosion.
Gas chromatography (GC)	An analytical method which separates mixtures of compounds by partitioning the compounds between a stationary (liquid) and a mobile (gas) phase.
Gasification	Process by which coal is heated in oxygen-depleted conditions to produce coal gas for use as a fuel.
Gasworks	Coal carbonisation plant whose primary product was gas, produced from heating coal.
Geophysical techniques	Non-invasive techniques for the investigation of the nature of materials below the surface of the ground. They rely on differences in the density, electrical resistance, magnetic properties, electrical resistance, electrical conductivity <i>etc.</i> , between different materials.
Geophytes	Plants which bear their perennating buds below the ground surface <i>e.g.</i> bulbs or corms.
Geosynthetic	Synthetic polymer extruded in sheet form.

Geotextile	Synthetic or natural permeable fabric used in conjunction with soil and vegetation, principally for erosion control, filtration, soil reinforcement and drainage.
Greenbelt	An area of open, undeveloped land around a town or city, designated for preservation.
Grinding mill	Enclosed area with water-powered grindstones for sharpening tools.
Ground investigation	Investigation of the nature of materials below the surface of a site.
Groundwater	Sub-surface water contained within the saturated zone.
Grouting	Treatment of unstable ground by injecting a slurry of cement/pulverised fuel ash into the voids.
Growth factor	A compound which, when present in low concentrations, stimulates growth in an organism, and, when absent, can retard growth.
Gulley (geomorphology)	A drainage channel formed by running water.
Hardstanding	Surface ground cover with hard wearing properties and little or no permeability to water <i>e.g.</i> tarmacadam, concrete.
Haul road	Temporary road constructed to enable materials to be moved more easily about a site.
Headframe	Structure above a shaft or adit supporting the winding gear. Usually made of steel, but sometimes of concrete or brick.
Heapstead	A large building at the mouth of a shaft or adit housing the head frame and coal- or ore-handling equipment.
Heave	Upward displacement of the ground that may arise as a result of excavating, surcharging, installing displacement piles or by chemical action.

Heavy metal	A term used to describe a range of dense, toxic metals which may be present in soluble or particulate form.
Hemicryptophyte	Plants which bear their perennating buds at the surface.
Herringbone drains	Drains laid in a herringbone pattern (see Figure 6.5(b)).
Horse gin circle	Winding equipment powered by a horse walking around a circular area.
Hot-spot	Area of higher concentration of contamination than present in the majority of the ground within the site under investigation.
Humus	Amorphous black or dark-brown material which results from the decomposition of organic matter in soils. A mixture of macromolecules based on benzene, carboxylic and phenolic acids.
Hydrocyclone	A small cyclone extractor for removing suspended matter from a flowing liquid by means of the centripetal forces set up when the liquid is made to flow through a tight conical vortex. Used to separate solids present in the liquid into coarse- and fine-grained fractions.
Hydrophobic	The property of a substance which makes it repel water and therefore resist solubilisation.
<i>In situ</i> treatment	Decontamination or other treatment process applied within undisturbed soil or groundwater to alleviate a contamination or pollution problem.
Indigenous	Referring to organisms which have developed naturally in a given area, and not as a consequence of artificial introduction.
Isopachytes	Lines connecting points of equal depth of cut or fill in earthworks; usually computer-generated. Isopachyte drawings indicate the location and depth of cut and fill areas, with the zero isopachyte indicating the boundary between cut and fill.

Jig	A device for concentrating ore according to the specific gravity of its constituent minerals.
Kiln	Stone built furnace, usually set against a hillside, used for removing impurities from the ore or for making lime (CaO).
Lagoon	Settling pond for material deposited from solution or suspension.
Landfill	The site of waste disposed by landfilling <i>i.e.</i> controlled tipping into ground repositories such as disused quarries, pits <i>etc.</i>
Leaching	Action of a solvent, usually water, on solutes in a permeable medium, such that solutes are released and lost from the medium.
Leaching tests	Tests where a solid material is brought into contact with a liquid. Carried out to determine the solubility in the liquid of substances present in the solid.
Legume	A plant of the Fabaceae (Leguminosae) family, characterised by the ability to fix atmospheric nitrogen.
Liquefaction	Change of a saturated granular soil into a fluid mass as a result of shock loading.
Longwall mining	A method of mining involving total extraction of a coal seam along an advancing coal face usually several hundred metres in length.
Magnetite	A type of iron ore which has magnetic properties.
Microclimate	The climatic conditions over a small area, differing from the general climatic conditions of a region by virtue of local characteristics such as vegetation cover, exposure or shelter <i>etc.</i>
Mineralisation	The conversion of organic compounds in the soil to simpler 'mineral' forms <i>e.g.</i> ammonium. Bacteria and fungi are usually involved in mineralisation.

Mining ventilation	Ventilation of mine workings to ensure an adequate supply of oxygen and prevent a build-up of mine gases.
Movement joint	Flexible joint within a building structure designed to accommodate limited movement.
Mud run	Movement of solids carried along by a flow of water.
Mutagenic	The ability of a chemical to cause a genetic mutation in a living organism.
Mycorrhiza	Symbiotic association of a soil fungus with the roots of a plant.
Naturalistic	Vegetation which is established and managed to vegetation resemble natural vegetation such as woodland or species-rich grassland.
Neutralisation	Adjustment of the pH of a medium by the addition of acid or alkali to produce a pH near 7.
Neutralising capacity	The extent to which a material neutralises acidity. Usually expressed as calcium carbonate or calcium oxide equivalents.
Nitrification	The oxidation and conversion, by certain bacteria, of ammonium to nitrate.
Nitrogen fixation	The conversion of free nitrogen gas into plant-available compounds by symbiotic bacteria or fungi living within nodules on the roots of plants, particularly legumes, or by free-living blue-green bacteria.
Nitrogen capital	The reserve of nitrogen in the soil.
Nurse species	Plant species which are included in a sown or planted mixture to shelter the slower growing components, or to provide some quick protective growth. They usually only survive a short time before being superseded by long-term components.

Opencast mining	Mining of shallow mineral deposits from surface excavations after removal of rock and other overburden.
Overburden	Material overlying a mineable deposit, but excluding soil horizons, which is removed separately.
Ozone	Powerful oxidising agent comprising three oxygen atoms, produced by the action of ultraviolet radiation or electrical discharge on gaseous oxygen.
Percentile	The value below which occurs a specified percentage of the observations in an ordered set of observations.
Pernicious weeds	Undesirable perennial plants which interfere with the use of land, are difficult to control and are able to spread rapidly unless controlled. Subject to national legislation in some countries.
pH	A measure of relative acidity and alkalinity. Low pH values (<7) indicate acidic conditions. High pH values (>7) indicate alkaline conditions.
Phanophytes	Plants which bear their perennating buds freely in the air at heights above 250mm. They are mostly woody plants, trees and shrubs.
Phosphate fixation	The formation of virtually insoluble compounds of phosphate, which prevents the uptake of phosphorus by plants.
Photogrammetry	That branch of land surveying in which plans and maps are based on and prepared from photographs, mainly taken from the air.
Photomontage	The combination of photography and perspective artwork, used to give a realistic impression of the appearance of a proposed development.
Phytotoxic	Referring to chemicals that, when present in elevated concentrations, exhibit toxic effects on plants.

Pickling	Cleaning of a metallic surface by immersion in acid.
Piezometer	An open or closed tube or pipe with a porous element, sealed into the ground and used to record porewater pressures or static groundwater level.
Pig bed	Level floor adjoining a blast furnace where the molten iron or steel was poured into channels and cast in sand to form pigs.
Pig iron	Metallic iron produced by a blast furnace which contains 3-4% carbon and other impurities such as silicon, phosphorus, sulphur and manganese.
Piling	Columns of reinforced concrete, steel or sometimes timber, driven or bored into the ground to transmit foundation loads to suitable bearing strata.
Pioneer	Plant species which are able to colonise and grow on unimproved substrates or in exposed harsh conditions. Sometimes used to improve conditions for other species.
Piping	Formation of underground water channels due to internal water erosion.
Pitch	Distillation residue of coal tar. A solid or semi-solid black resinous substrate containing high molecular weight organic compounds.
Polluter pays	Legal principle which vests liability for decontamination costs with those responsible for a given pollution incident.
Pollution	The introduction into the environment of substances or energy liable to cause harm to human health, to living resources and ecological systems, damage to structures and amenity or infringement of legitimate uses of the environment.
Ponding	Pooling of water in hollows on a surface or due to a lack of capacity within a drainage system.

Pore pressure	Internal water pressure within a saturated soil.
Portal	Entrance structure to a mine tunnel.
Preloading	Consolidation of fill material by temporary surcharging, with the aim of increasing the bearing capacity of the ground before construction takes place.
Pump and treat	Decontamination methods which extract contaminated groundwater and treat the water in a batch or continuous decontamination process.
Pyrite	Iron pyrites, $\text{FeS}_2$ , present in many colliery spoils, coal and some iron ores.
Radial drains	Drains laid in a radial pattern.
Raft foundation	Reinforced concrete foundation extending beneath the whole of a building to spread the loading uniformly into the underlying strata, and limit the effects of mining subsidence or differential settlement.
Refractory linings	The interior lining of a furnace which is in contact with hot gases, molten metals and slags and must therefore be made of materials which are capable of resisting high temperatures, abrasion and chemical action <i>i.e.</i> refractories.
Regrading (engineering)	The movement of surface soil and mineral deposits to change the shape of the land surface.
Regression (of plants)	The death or decline of vegetation caused by progressively worsening substrate conditions <i>e.g.</i> acidity or toxicity.
Reinforced strip or pad (engineering)	Reinforced concrete foundations beneath load-bearing foundation walls or columns to spread the loading uniformly into the underlying strata and limit the effects of mining subsidence or differential settlement.
Relief well	Borehole drilled at the foot of an embankment to relieve artesian water pressure or high pore pressure (see Figure 6.4(b)).

Retaining wall	Wall constructed to provide lateral support to the ground or to resist pressure from a mass of stored material.
Return period	The period of time between likely occurrences of a storm of a given intensity.
Risk	The chance or possibility of adverse consequences occurring. Risk combines the concepts of hazard <i>i.e.</i> harm, and probability.
Roasting and calcining area	Large level area where the ore and fuel were mixed and burnt to drive off impurities and improve the quality or grade of the ore.
Rockhead	Interface between subsoil and underlying bed rock.
Rolling mill	Enclosed area where iron or steel was rolled into its final shape.
Room and pillar	Method of mining in which unworked pillars were left in mining place to support the overburden (see Section 3.2.2).
Rotational slip	Slope failure involving a curved slip surface (see Figures 6.2(a) to (d)).
Run-of-mine	The material brought to the surface from underground prior to separation into coal and discard.
Seam (geology)	A discrete layer of coal or other minerals.
Semis	Semi-finished or intermediate steel products such as ingots, slabs, blooms and billets.
Settlement	Downwards movement of a structure due to subsidence of the ground beneath.
Settling pond	Lagoon used to allow sediment to settle out prior to discharge of water into a watercourse.

Shaft	A vertical means of entry into the ground, usually associated with mining.
Shale	A consolidated clay rock which possesses closely-spaced well-defined laminae. Present in coal measures it can form the main constituent of mine discard.
Shear strength	The level of stress in a soil at which shear failure occurs.
Sheet piling	Closely set piles, usually interlocking steel sections, driven into the ground to provide an earth retaining structure.
Silt trap	Chamber within a drainage system used to collect grit and sediment.
Site assessment	The process by which all relevant information concerning a site is compiled and evaluated prior to reclamation.
Site audit	Assessment of a site for environmental damage, liability and opportunities, prior to a reclamation and/or remediation scheme.
Site investigation	Site assessment activities carried out on site.
Slag	The solid waste material from a metallurgical furnace. Slag is generally a rock-like material formed by fusion of impurities present in the metal with a flux, such as limestone.
Slumping	Localised slope failure leading to bulging at the toe of the heap.
Slurry	Fluid mixture of fine-grained material and water <i>e.g.</i> cement slurry.
Smelting	The reduction of iron ore to metallic iron using heat.
Soakaway	A pit or chamber used to allow surface drainage water to percolate into the surrounding ground.

Soil (engineering)	Naturally occurring loose or soft deposits and similar unnatural deposits such as discard.
Soil mechanics	The application of engineering principles to soil.
Soil structure	The physical arrangement of soil particles and soil aggregates, water and air spaces, which maintains drainage paths, water storage and root penetrability.
Soil washing	Physical separation techniques using soil-water slurries to separate contaminants from a soil in a soil washing plant.
Solid solution	The substitution of atoms within a crystal lattice without alteration of the lattice structure.
Solidification	Treatment process by which chemical amendment of a soil or slurry will produce a solid matrix which is highly resistant to leaching and erosion.
Specific gravity (SG)	The ratio of the mass of a given volume of a material to the mass of an equal volume of water at a temperature of 4°C. The term relative density is also used.
Spent oxide	Chemically complex residue resulting from the use of iron oxide to purify coal gas. Contains high concentrations of sulphur compounds and cyanide.
Spoil heaps	Heaps of colliery or other waste material produced in mining.
Spontaneous ignition	Ignition due to self-heating within spoil material.
Stabilisation	Referring to a chemically-contaminated matrix undergoing chemical treatment to reduce the potential for the movement and leaching of contaminants.
Staging	Horizontal platform formed within a mine shaft, usually of steel or timber.

Stand pipe	An open vertical pipe connected to a borehole or pipeline such that the head of water in the pipe or borehole cannot exceed the length of the stand pipe. Used for monitoring groundwater levels and sampling water and gas.
Steam coal	This type of coal found usually within the bituminous to anthracite range, with a carbon:hydrogen ratio of approximately 20, is specifically suitable for steam generation in power stations. It is also sometimes used in smelting and coke making.
Stratification	Deposition of material in distinct layers.
Subsidence	Downwards movement of the ground <i>e.g.</i> due to the effects of collapsed mineworkings.
Substrate (plant)	The medium in which plants are growing or are required to grow.
Succession	Natural sequence or evolution of plant communities, each stage dependent on the preceding one and on environmental and management factors.
Support pillar	Pillar of unworked coal or mineral left in place to support the roof of the workings. Large support pillars may be used to avoid disruption beneath sensitive buildings or at shaft locations.
Surcharge loading	Imposed loading applied to the ground surface.
Surface pan	The hard, flat surface formed on soils by weathering and rainfall.
Surface slip	Slope failure due to surface slippage of granular material (see Figure 6.2(e)).
Tailings	The fine-grained particulate matter present in the liquid waste from colliery spoil washing or coal preparation.
Teratogenic	Causing abnormal development of an animal foetus.

Terracing	Formation of a series of horizontal platforms or berms on a slope.
Texture (soil)	The particle size distribution of the substrate, assessed as the ratio of particles in specific size classes, which governs some physical properties of the substrate.
Therophyte	Annual plants which pass the unfavourable season as an embryo or seed.
Tip (mining)	A deposit of discard.
Tippler	Equipment for gripping and rotating coal or ore trucks to discharge the contents.
Toe (of a slope)	Bottom of a slope.
Tolerance (plant)	The ability of an organism to maintain active growth in the presence of elevated concentrations of toxic chemicals which would adversely affect the growth of other organisms.
Topsoil	Upper humic part of a soil profile.
Tramway	Railway (other than standard gauge) used in a mine or works for transporting materials in wagons.
Transpiration	The process by which water is moved from plant roots to the leaves and released by evaporation.
Trial pit	Excavation carried out from the ground surface to determine the nature of the ground or the existence of underground structures and services.
Underpinning	Method of stabilising existing structures by the provision of new foundations placed beneath the existing foundations and taken down to suitable bearing strata using mass or reinforced concrete.
Utility services	Gas, water, electricity and telephone services.

Vacuum extraction	Treatment process for contaminated soil and groundwater whereby volatile contaminants are extracted from the ground via vacuum pumping.
Vadose zone	The unsaturated part of a soil profile above the water table.
Verification testing	Testing carried out after reclamation or decontamination works to evaluate and demonstrate their effectiveness.
Vitrification	Process by which intense heat and subsequent cooling converts inorganic mineral particles and associated chemicals into a fused glass-like matrix.
Void ratio (engineering)	Ratio of the volume of voids to the volume of soil particles.
Walkover survey	An initial visual inspection of a site.
Washery discard	Waste material from coal washing operations.
Water table	The standing water level within the ground below which all pores and fissures are saturated.
Water table, perched	Water table maintained above the general standing water level in the ground below, usually by an impervious stratum.
Winding gear	Engine and equipment used for operating a cage or skip in a mine shaft.
Windthrow	Uprooting of trees, by strong wind.