BRITISH STANDARD

BS 3618-1: 1969

Glossary of

Mining terms —

Section 1 Planning and Surveying

Confirmed January 2011

Co-operating organizations

The Mining and Quarrying Requisites Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government department and scientific and industrial organizations:

Association of Mining Electrical and Mechanical Engineers*
British Electrical and Allied Manufacturers' Association
British Steel Industry
Federation of Associations of Mining Equipment Manufacturers
Institution of Electrical Engineers
Institution of Mechanical Engineers
Institution of Mining Engineers*
Mechanical Handling Engineers' Association
Ministry of Power*
National Association of Colliery Managers*
National Coal Board*

The Government department and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

University of Birmingham
University of London
University of Nottingham
University of Strathclyde

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Contents

Foreword

This glossary has been prepared, under the authority of the Mining and Quarrying Requisites Industry Standards Committee, in order to standardize and to co-ordinate the technical terms in current use in mining in the United Kingdom. Although the majority of the terms are necessarily concerned with coalmining, account has been taken of terms used in other forms of mining and of quarrying.

The need for this glossary arose from the widely varying interpretation of terms used within the industry, and the prevalent use of more than one synonym, some purely local in origin, to indicate specific meanings.

The glossary has been issued in a number of sections, according to subject matter as follows:

— *Section 1: Planning and surveying;*
— *Section 2: Ventilation;*
— *Section 3: Boring and exploration;*
— *Section 4: Drainage;*
— *Section 5: Geology;*
— *Section 6: Drilling and blasting;*
— *Section 7: Electrical engineering and lighting;*
— *Section 8: Winning and working;*
— *Section 9: Shafts and associated equipment;*
— *Section 10: Transport;*
— *Section 11: Strata control.*

As Section 1, "*Planning and surveying*", this was the first publication in the BS 3618 series. In the normal process of periodical review it was seen that a number of modifications and additions were desirable; therefore, since the previous edition was issued as long ago as 1963, it was decided to publish a revision incorporating these changes.

In compiling the glossary account has been taken of the fact that terms primarily associated with coal are separately defined in BS 3323, "*Glossary of coal terms*", and terms relating to coal preparation are defined in BS 3552, "*Glossary of terms used in coal preparation*". The following factors also have applied in the statement, selection and definition of terms:

1) Where two or more terms are grouped together, the term which is favoured is printed first and in heavy type. It is hoped that such preferred terms will gradually displace the non-preferred terms. The non-preferred terms of a group are printed in small capital letters. Where the use of any term is considered to be undesirable it is marked *deprecated*.

2) Generally, only terms which have a specific meaning in this field have been included. Where a technical term has an accepted meaning in other fields of engineering it has been omitted; the few exceptions are terms which are of particular importance in mining.

3) Purely local terms are not defined, but those of sufficient importance are included as non-preferred terms.

4) Obsolete terms are excluded.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 5 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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Glossary

Term	Definition
abandonment plans	The plans, drawings and sections required by law to be sent to the District Inspector of Mines, following the abandonment of a seam or mine.
abney clinometer	See *abney level*.
abney level ABNEY CLINOMETER	A hand-held instrument for measuring inclinations.
alignment	See *co-planing*.
anaglyph	A map so drawn in two colours that a three-dimensional picture is obtained when seen through a special viewing device.
arbitrary line	A reference line, the direction of which does not necessarily coincide with cardinal direction.
assumed north	A direction assumed to be north for reference purposes.
auxiliary telescope	A telescope, fitted parallel to the main telescope of a theodolite, for measuring and setting out horizontal and vertical angles where the main telescope cannot be used.
azimuth of a line	The angle measured clockwise from the northerly direction of the geographic meridian to the direction of the line.
barrier	Mineral or ground left unworked so as to separate workings from each other or from a natural hazard.
baseline	1. A line, the horizontal length of which has been determined with great precision. Such lines are used to control the linear scale of a triangulation system. 2. A line established underground, usually in an area where ground movement is negligible, the length and bearing of which is determined with precision. Such lines are used for the control of traverses through unstable areas where it is impossible to establish permanent surveying stations.
base plate	See *measuring plate*.
bore journal	A tabular record of the characteristics and thicknesses of strata intersected by a borehole.
borehole survey	1. A survey to determine the precise position of various points on the central axis of a borehole. 2. A survey to obtain information about the strata intersected by a borehole.
boundary	The limit of working of a mine.
catalogue of abandoned mines	A record of plans of abandoned mines which gives the location of the workings, the minerals worked, the custodian of the plans, and references as to the approximate extent of the workings within specified 6 inch ordnance sheets.
cautionary zone	A zone in which unworked coal lies at or less than a specified distance from unconsolidated deposits or other sources of danger.
centre line (roadway)	A line marked on the roof of a roadway to indicate the direction of the central axis of the roadway.
check survey VERIFICATION SURVEY, *deprecated*	A survey made to confirm the positions of established survey stations in the mine.
colliery surveyor	A surveyor appointed to carry out surveying work and to prepare plans and sections of a mine, but who is not the surveyor for the mine. NOTE Prior to 1947, "Colliery surveyor" was the title given to the "Surveyor for the mine". The term is still used colloquially in this sense.

Term	Definition
composite plan	1. A mine plan showing the workings in more than one seam, usually distinguished by different colours. 2. A plan showing various physical features and properties of the strata.
compressed air plan	A plan showing the position and details of certain compressed air equipment in the mine.
continuous azimuth method	A method of traversing by which the azimuth of the survey lines is obtained from the instrument.
co-planing ALIGNMENT, *deprecated*	The process of moving the head of a theodolite laterally until its vertical axis lies in the produced vertical plane common to two plumb lines.
correlation	1. The process of orientating underground survey lines or of co-ordinating underground survey stations to the National Grid. 2. See also *Geology* section.
density (of seams)	1. An indication of the spacing of seams in the strata; the seam density is said to be high if the seams are close together, or low if they are widely separated. 2. The ratio of the sum of the thicknesses of a number of adjacent seams to the thickness of an arbitrarily chosen sequence of strata.
deputy's district plan	The plan required by law, which shows the limits of each deputy's district and the meeting stations.
development plan	A plan showing the proposed development of the mine workings, and kept for operational purposes.
disused workings	Workings which are no longer in operation but which are not classified as abandoned.
double setting DUAL SETTING, *deprecated*	A levelling procedure whereby observations are duplicated by resetting the instrument to detect errors of measurement immediately.
draft LEG, *deprecated*	A survey line in a traverse.
dual setting	See *double setting*.
easting	The easterly component of a National Grid co-ordinate.
electrical plan	The plan required by law, which shows the position and details of certain electrical apparatus in the mine.
electronic level	A precise levelling instrument in which a pendulous device (bubble or pendulum) forms part of an electrical alternating current bridge. The deviation from vertical is indicated on a milliammeter.
fire-fighting plan	A plan showing the positions of items of fire-fighting equipment. (Separate plans are used for surface buildings and underground workings.)
floor station	A survey station secured in the floor of a mine roadway or working face.
geographic or true north	The northerly direction of the geographic meridian at any terrestrial point.
geological map	1. A map, required by law, showing the superficial and drift deposits. Generally referred to as the "drift" map. 2. A map showing the rocks according to their geological classification. Generally referred to as the "solid" map.
grade lines	Lines which define the intended grade of a roadway which is being driven. (Such lines are used to control the gradient of a roadway.)

Term	Definition
graphic section	A drawing which shows the sequence of strata.
gyroscopic compass	See *gyroscopic theodolite.*
gyroscopic theodolite GYROSCOPIC COMPASS, *deprecated* MERIDIAN INDICATOR	An instrument which indicates the direction of geographic (or true) north, using the inertial properties of a rapidly rotating mass, the spin axis of which is horizontal and free to rotate about a vertical axis. (This instrument has been developed in its most precise form for application to mine orientation and borehole surveying.)
holding	See *take.*
holing THIRLING	The meeting of two roadways driven expressly to intersect each other. (See also *Winning and Working* section.)
improved dial TELESCOPIC DIAL	A miner's dial in which a telescope replaces the usual sighting vanes.
isopachytes	Lines drawn on a map showing equal vertical thicknesses of a stratum or strata.
lamp cup	A means for supporting a flame safety lamp on a tripod to provide a sight for surveying.
layover tracing	See *overlay tracing.*
leg	See *draft.*
linesman	An assistant to a surveyor.
loose-needle traversing	A method of traversing in which the magnetic bearings of survey lines are separately obtained by reference to the magnetic needle.
magnetic correlation	The orientation of an underground survey, using the earth's magnetic field.
manager's plan	A plan of the workings kept at the office of the mine, in addition to the working plan, for everyday use by the manager.
measuring plate BASE PLATE, *deprecated*	A metal plate used to provide a stable measuring point of a temporary nature.
meridian indicator	See *gyroscopic theodolite.*
mine surveyor	See *surveyor for the mine.*
miner's dial	An underground surveying instrument for measuring and setting out angles and determining magnetic north.
mining theodolite	A theodolite having particular features of design which make it suitable as an underground surveying instrument, e.g. incorporating provision for observing steeply inclined sights. (See also *auxiliary telescope.)*
national grid	A system of plan reference lines, in the form of a rectangular grid, used by the Ordnance Survey and based upon the transverse Mercator projection (which is also known as the Gauss Conformal Projection).
national grid co-ordinates	Co-ordinates, referred to the National Grid of the Ordnance Survey, which are specified in metres and consist of two components, an Easting and a Northing.
northing	The northerly component of a National Grid co-ordinate.
optical centring device	See *optical plummet.*
optical plummet OPTICAL CENTRING DEVICE	An optical device which enables a theodolite to be accurately positioned over or under a survey station.
overlay tracing LAYOVER TRACING, *deprecated*	A tracing on which the workings in a seam are shown. A series of such tracings allows the workings in several seams to be seen in their correct horizontal relationship.
parcel	See *take.*

Term	Definition
pilot bob	The weight attached to a shaft plumb line for the purpose of lowering the line down the shaft.
project plans	A series of plans of a proposed new colliery or reconstruction which are drawn up for the purpose of obtaining approval of the project.
pumping plan	A plan which shows, in addition to the workings of a mine and the seam contours, the position of pumps, dams and waterlogged areas.
quarterly survey	An underground survey required by law to be undertaken at least once every three months for the purpose of bringing the working plans and other plans up to date.
reconstruction	Re-organization of the underground workings, improvement of surface facilities and/or re-equipment of an existing colliery to improve its efficiency and/or increase output.
rescue plans	The sets of plans required by law which are suitable for use by rescue workers.
reserves	The quantity of mineral which is calculated to lie within given boundaries. The reserves are described as Total (or Gross), Workable or Probable Working, depending on the application of certain arbitrary limits in respect of deposit thickness, depth, quality, geological conditions and contemporary economic factors. Proved, Probable and Possible reserves are other terms used in general mining practice.
roof station	A survey station fixed in the roof of a mine roadway or working face.
Schmidt apparatus	Apparatus used to determine the position of rest of a freely swinging shaft plumb line.
seam contour	A line, drawn on a plan, joining points on the floor of a seam which have the same height above a prescribed datum.
shaft plumbing	The suspension of plumb lines in a shaft, usually for the purpose of orientation.
shaft section	A drawing or log giving details of the structure and the nature of strata intersected by a shaft.
shaft survey	A survey made to determine the amount of misalignment or axial distortion and the amount of displacement to which the shaft wall has been subject due to pressure.
sight lines	The plumb lines, hung from the roof of a mine roadway, used for controlling the direction in which the roadway is driven.
sketch plan	A plan, required by law to be posted in covered accommodation at the mine, which shows telephone stations, means of egress from the workings to the surface, and the main roads.
spad SPUD, *deprecated*	A means of marking an underground survey station, which consists of a flat spike in which is drilled a hole for the threading of a plumb line.
spud	See *spad*.
stage plumbing	A precise method of orienting underground workings in which plumb lines are transferred down a deep shaft in stages of 400–600 ft (120–185 m). While shaft sinking is in progress, the lines can also be employed to orient the shaft itself and to keep it plumb.
stages I, II and III	Phases in the approval and authorization of expenditure on National Coal Board schemes for new collieries or colliery reconstruction.
sterilized coal	That part of a coal seam which, for various reasons, is not mined.
stone dust plan	A plan, required by law, showing the zones in a colliery from which samples of deposited dust are collected.

Term	Definition
straight-edge levelling	A system of levelling using a straight edge and a spirit level in places which are too steep for the convenient use of conventional instruments.
stretcher bar	A telescopic bar used to support a theodolite when the inclination of the roadway (and sometimes its width) does not permit the use of a tripod.
subsidiary survey	An underground survey made to determine the position of a face line or goaf line or some-other specific feature.
supplementary plans	Plans which may be required by law to show in greater detail information not easily depicted on the working plans.
surface plan	A plan of the surface layout of a mine.
surveyor for the mine In coal mining: UNIT SURVEYOR, *deprecated* In met mining: MINE SURVEYOR, *deprecated*	The statutorily appointed surveyor responsible for preparing or supervising the preparation of all plans, drawings and sections of a mine or mines, as required by law.
take HOLDING, *deprecated* PARCEL, *deprecated* TAKING, *deprecated*	A mineral bearing area which a mine is permitted to work.
taking	See *take*.
telescopic dial	See *improved dial*.
thirling	See *holing*.
traverse	A series of survey stations, which are located in position by measuring the distances between consecutive stations and the angles of the rectilinear figure formed by the points. If the traverse starts and finishes at the same point, or at points which have been located previously, it is called a closed traverse (or is said to be closed polygonally), otherwise it is an open traverse.
unconsolidated surface deposits	Surface deposits such as moss, peat, sand, gravel, silt or mud.
unit surveyor	See *surveyor for the mine*.
ventilation plan	A plan or drawing, required by law, which shows the ventilation air currents in a mine and the means of controlling them.
verification survey	See *check survey*.
warning lines	The lines drawn on working plans to indicate the limit beyond which workings should not extend, e.g. because of the proximity of disused or abandoned workings.
Weisbach triangle	The highly attenuated triangle formed by the plan position of two shaft plumb lines and one observation station.
Weiss quadrilateral	The quadrilateral formed by the plan position of two shaft plumb lines and two observation stations.
working papers	The field and office notes and calculations relating to the plans, drawings and sections of a mine which are required by law to be preserved. These papers are sent to the District Inspector of Mines on the abandonment of the mine.
working plan	The plan required by law, which shows all the current, disused or abandoned workings within the boundaries of the mine and within a stipulated zone adjacent thereto.

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London
W4 4AL