

N° 5 – Glossary of Terms

5 - GLOSSARY OF TERMS

Adaptor

Fitting that provides for connections to structures, to pipes of other materials, or to valves.

Aggregates

Cleaned gravel, crushed stone and sand used in the manufacture of concrete pipeline products.

Backdrop manhole

Manhole with a connection, by means of a vertical pipe, at or just above invert, from a drain or sewer at a higher level.

Backfill material

Fill placed above the bedding and surround material above a buried pipeline.

Barrel

That portion of a pipe throughout which the internal diameter and cross-section remain substantially uniform.

Base Unit

Vertical component with integral base, with or without benching, and with appropriate flexible joints to provide watertight connections with pipelines, with or without integral connecting pipe(s) or adaptor(s).

Bedding material

The construction material supporting a buried pipeline, introduced under or around the pipes so as to produce, in combination with the pipes themselves, a pipeline able to resist the design loads.

Bedding class

The design for the bedding of a pipeline, designed to distribute the external loads around the whole or part of the periphery, allowing the use of a specific bedding factor.

Bedding factor

Ratio of the maximum design load for the pipe, when installed with a particular embedment, to the test load which produces the same maximum bending moment.

Benching

A surface at the base of a chamber with the dual purpose of confining the flow of sewage to avoid the accumulation of deposits and of providing a safe working surface.

Bend

Fitting that provides for a change of alignment within a pipeline.

Biscuit

See 'Cover slab'

BSI

British Standards Institution.

Butt pipe

Small lengths of pipe, either spigot or socket protruding, built into a manhole wall to provide a flexible joint as close as possible to the outside of the manhole.

Caisson method

A method for installing manholes utilising a steel cutting shoe fitted to the base section and a specially developed joint system which enables shafts to sink into the ground under their own weight or with limited downward force.

CCTV

Closed Circuit Television used for inspection of buried pipelines.

CEN

European Committee for Standardisation.

Centrifugal spinning

A method of manufacture where concrete is fed into a steel mould rotating horizontally on a spinning bed at high speed, the compaction being by vibration and centrifugal force.

Chamber or shaft unit

Vertical hollow component of uniform cross-section except at the joint profile. Flexible joints to accommodate connecting pipelines may be provided as for a base unit.

Circular pipe

Pipe whose barrel cross-section in a plane perpendicular to its longitudinal axis is described by two concentric circles.

Circular unit

Circular pipe, or fitting for use with such a pipe.

Civil Engineering Specification for the Water Industry (CESWI)

A standard specification for civil engineering contracts in the UK water industry. Produced by UK Water Industry Research Limited.

Combined sewer

A sewer designed to carry both wastewater and surface water in the same pipeline.

Concrete cover

Actual thickness of concrete over any reinforcement.

Connecting pipe

Short pipe with plain, spigot or socket ends.

Cover frame seating ring

Unit, normally reinforced, used in place of engineering bricks to adjust the cover and frame to the required level.

Cover slab

Unit forming the horizontal roof of a chamber or shaft and having an access opening, immediately above which an adjusting unit or frame and cover is designed to fit. Sometimes known as a 'biscuit'.

Crown

The highest point of the external surface of pipe barrel at any cross section.

Crushing load

See 'Minimum crushing load'.

Crushing strength

See 'Strength class'.

Crushing test

Test for pipes and manholes to determine strength.

DN

See 'Nominal size'.

Domestic wastewater

Wastewater discharged from kitchens, laundry rooms, lavatories, bathrooms, toilets and similar facilities.

Double step

A manhole step which is designed to support two feet or two hands, and is intended to be installed in a single vertical alignment.

Drain

Pipeline, usually underground, designed to carry wastewater and/or surface water from a source to a sewer.

Drain system

Network of pipelines and ancillary works that conveys wastewater and/or surface water to a cesspool, sewer system or other place of disposal.

Dry weather flow

Rate of flow in a drain or sewer system in specified dry weather conditions.

Elastomeric joint ring

An annular ring of circular or other cross section used to provide a watertight seal between pipe spigot and socket in a flexibly jointed pipeline.

Exfiltration

Escape of sewage from a drain or sewer system into surrounding ground.

External diameter

Mean external diameter of the pipe barrel at any cross-section.

Fitting

Adaptor, bend, connecting pipe, junction or taper (reducer).

Flexible joint

A type of joint using an elastomeric joint ring to provide a watertight seal whilst permitting a specified amount of movement between adjacent pipes.

Flexible pipe

Pipe, the load carrying capacity of which is limited by diametral deformation under load to the ultimate design criteria without breaking or overstressing.

Foul sewage

See 'Wastewater'.

Foul sewer

Sewer system carrying wastewater.

Gradient

Ratio between the vertical and the horizontal projections of a pipe length.

Gravity system

Drain or sewer system where flow is caused by the force of gravity and where the pipeline is designed normally to operate partially full.

Gully cover slab

A frame or surround manufactured from concrete, with or without a drainage slot, to accommodate a road gully grating and frame.

Gully - trapped

A hollow cylinder with base, manufactured from concrete with an outlet so designed as to form a water seal and to facilitate the connection of pipelines, and provided with a rodding eye.

Gully - untrapped

A hollow cylinder with base, manufactured from concrete with an outlet to facilitate the connection of pipelines, which acts as a rodding eye.

High Frequency Vibration Casting

Most common method of manufacturing concrete pipes where semi dry concrete is fed into a vertical steel mould and compacted by high frequency vibration transmitted through either the core or from a table underneath.

Hydraulic flow charts

Charts for the determination of pipe diameters based on roughness factor, discharge volume and velocity and hydraulic gradient.

Hydrostatic test

Test undertaken to determine the watertightness of pipes.

Infiltration

Ingress of groundwater into a drain or sewer system.

Inspection chamber

Structure as a manhole, but without access for personnel.

Integrated seal

Seal incorporated into a unit during manufacture.

Internal barrel length

Length between the base of the socket and the end of the spigot of a unit.

Internal diameter

Mean internal diameter of the pipe barrel at any cross-section.

Internal height

Dimension of a unit relating to the jointing faces or invert.

In wall joint

A type of joint where the socket is made within the wall of the pipe, usually referred to as a rebated, ogee or tongue and groove joint.

Invert

The lowest point of the internal surface of a pipe barrel or chamber at any cross-section.

Jacking pipe

Unreinforced or reinforced concrete pipe, incorporating a flexible joint within the wall thickness, rebated or butt-ended with collar and designed to be installed by the pipejacking method.

Joint

Connection between the adjacent ends of two components including the means of sealing.

Jointing

Method of connecting pipes and fittings.

Junction

Fittings used to connect, at an angle, two separate pipelines.

Kitemark

Third Party Certification Symbol which confirms that the product has been manufactured to the relevant Standard and approved by BSI.

Landing slab

Unit forming an intermediate horizontal platform within a manhole and having an access opening.

Lifting systems

Systems developed by manufacturers to assist in the lifting and jointing of pipes.

Manhole

Vertical watertight structure used to connect pipelines, to change direction and/or level, to permit access for personnel and/or equipment for inspection and maintenance and to allow aeration and ventilation.

Microtunnelling

Method of steerable remote control pipejacking to install pipes of internal diameter less than that permissible for man-entry.

Minimum crushing load

Load that a unit is required to withstand.

Nominal size

Numerical designation of the size of a unit or a component within a structure, which is a convenient integer approximately equal to the manufacturing dimension in millimetres for the internal diameter (DN). For a unit with an egg-shaped bore, the nominal size (WN/HN) is given with the numerical designation of width/height. For a unit with a rectangular internal shape, the nominal size (LN/WN) is given with the numerical designation of length/width.

Ogee joint

See 'Rebated joint'.

Ogee pipe

A pipe made with ogee joints.

OPC

Ordinary Portland Cement.

Open cut

Traditional method of installation with pipes laid in an open trench prior to backfilling.

Outfall

Final length of pipeline from which sewage is discharged to a treatment works or receiving water.

Ovoid pipe

Egg shaped pipe.

Partially separate system

A sewer system, normally of two pipelines, where one pipeline carries wastewater together with a designed volume of surface water and the other pipeline carries the balance of the surface water.

Perforated pipe

An unreinforced pipe with circular perforations.

PFA

Pulverised fuel ash.

Pipe

Hollow precast concrete unit of uniform bore throughout its internal barrel length, except in the vicinity of the joint profile, manufactured with or without base.

Pipejacking

Method for directly installing pipes behind a shield machine by hydraulic or other jacking from a drive shaft such that the pipes form a continuous string in the ground.

Porous pipe

A hollow cylinder manufactured from unreinforced porous concrete, of uniform internal diameter and cross-section throughout its length, except at the joint profile.

Proof load

Load that a reinforced concrete unit is required to withstand with a defined limit on cracking.

Rebated joint

A joint made within the wall thickness of a unit, including ogee and tongue and groove joints.

Reducing slab

Reducing unit forming the horizontal roof of a chamber and having an opening to accommodate a shaft unit above it.

Reinforced concrete pipe

Pipe that is structurally reinforced with one or more steel cages, suitably positioned to resist tensile stresses in the pipe wall.

Rigid pipe

Pipe, the load carrying capacity of which is limited by breaking or overstressing, without significant deformation of its cross-section.

Rocker pipes

Short lengths of pipe jointed to butt pipes to provide for differential settlement at manholes.

Roughness value (ks)

A measure of the resistance of the surface of a pipe or channel under turbulent flow which is expressed in millimetres.

Rubber ring

See 'Elastomeric joint ring'.

Rung iron

See 'Double step'.

Seating ring

See 'Cover frame seating ring'.

Self-cleansing

Ability of the flow in a drain or sewer to carry away solid particles, which would otherwise be deposited in the pipe.

Separate sewer

Sewer system, normally of two pipelines, one carrying wastewater and the other surface water.

Septic sewage

Anaerobic sewage containing sulfides.

Sewage

Wastewater and/or surface water conveyed by a drain or sewer.

Sewer

Pipeline or other construction, usually underground, designed to carry wastewater and/or surface water from more than one source.

Sewerage

See 'Sewer system'.

Sewer system

Network of pipelines and ancillary works which conveys wastewater and/or surface water from drains to a treatment works or other place of disposal.

Sewers for Adoption

A design and construction guide for developers produced by the Water Service Association for adoptable sewer systems.

Single step

A manhole step which is designed to support one foot or hand, and is intended to be installed in a staggered configuration.

Soakaway

Vertical chamber of circular cross-section, perforated to allow the passage of water and with or without an access shaft.

Socket

End part of a pipe which is formed to accept the insertion of a spigot.

Soffit

The highest point of the internal surface of a pipe barrel or chamber at any cross-section.

Specials

Non standard products available on request from manufacturers.

Spigot

End part of a pipe which is formed to insert into a socket.

Springing Level

The level of a pipe barrel midway between soffit and invert.

SRPC

Sulfate Resisting Portland Cement.

Steel banded joints

Type of joint where the socket is made within the wall thickness of the pipe by means of an integral steel collar. Used for jacking pipes.

Step iron

See 'Single step'.

Strength class

Minimum crushing load in kilonewtons per metre, divided by one thousandth of either its nominal size (DN) or nominal width (WN) or nominal length (LN).

Stringing out

The process of placing pipes from stack or lorry alongside the line of the trench ready for laying.

Stub pipe

See 'Butt pipe'.

Surcharge

Condition in which wastewater and/or surface water is held under pressure within a gravity drain or sewer system, but does not escape to the surface to cause flooding.

Surface water

Water from precipitation, which has not seeped into the ground and which is discharged to the drain or sewer system directly from the ground or from exterior building surfaces.

Surface water sewer

Sewer system carrying surface water.

Tamping

The process of compaction, using hand or mechanical means, applied to bedding and backfill material around a buried pipeline.

Tongue and groove joint

See 'Rebated joint'.

Trade effluent

Wastewater discharge resulting wholly, or in part, from any industrial or commercial activity.

Trench excavation

See 'Open cut'.

Unit

Precast concrete pipe, fitting or component of a manhole or inspection chamber structure.

Ultimate (collapse) load

Maximum load reached by the testing machine during a crushing or vertical strength test (when the load-recording facility does not show any further increase).

Unreinforced concrete pipe

Pipe that does not contain structural steel reinforcement.

Vertically Cast

See 'High Frequency Vibration casting'.

Vertical unit

Base, chamber or shaft unit.

Waste water

Water changed by use and discharged to a drain or sewer system.

If you would like any further information please contact:

Concrete Pipeline Systems Association

**60 Charles Street
Leicester
LE1 1FB**

Tel: 0116 253 6161 **Fax:** 0116 251 4568

Email: mail@concretepipes.co.uk **Web:** www.concretepipes.co.uk

The information in this guide is to the best of our knowledge true and accurate, but all instructions, recommendations or suggestions are made without guarantee. Since the conditions of use are beyond their control, the Concrete Pipeline Systems Association disclaim any liability for loss or damage suffered from the use of this data or these suggestions. Furthermore, no liability is accepted if use of any products in accordance with this data or these suggestions infringes any patent. The Concrete Pipeline Systems Association reserves the right to change product specifications without further notice.