

भारतीय मानक

नदी घाटी परियोजनाओं सम्बन्धी परिभाषिक शब्दावली

भाग 19 अभिपूरण

Indian Standard

GLOSSARY OF TERMS RELATING TO RIVER VALLEY PROJECTS

PART 19 GROUTING

ICS 93.160

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BUREAU OF INDIAN STANDARDS
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FOREWORD

This Indian Standard (Part 19) was adopted by the Bureau of Indian Standards, after the draft finalized by the Terminology Relating to River Valley Projects Sectional Committee had been approved by the River Valley Division Council.

A large number of Indian Standards have already been printed covering various aspects of river valley projects and some more are in the process of formulation. These standards include technical terms, and precise definitions for these are required for avoiding ambiguity in their interpretation. To achieve this aim, Terminology Relating to River Valley Projects Sectional Committee is bringing out Indian Standard Glossary of terms relating to river valley projects (IS 4410), being published in parts. This part contains definitions of terms relating to grouting.

*Indian Standard***GLOSSARY OF TERMS RELATING TO
RIVER VALLEY PROJECTS****PART 19 GROUTING****1 SCOPE**

This standard (Part 19) covers the definitions of terms relating to grouting for river valley projects.

2 TERMINOLOGY**2.1 Ascending Stage Grouting**

Grouting a hole in stages as defined by packers in the hole from the bottom upwards.

2.2 Agitator

A machine employed for agitating an already mixed grout to maintain the grout in colloidal/suspended state, during storage or grouting operation.

2.3 Backfill Grouting

Due to the irregular excavated section of the rock, empty pockets are left behind the concrete in the lining in the arch portion of a tunnel or a cavity. Backfill grouting is the process of filling these spaces by sand-cement grout. The grout is injected through pipes set in concrete lining or through holes drilled through concrete lining.

2.4 Circulating System

The piping arrangement by which grout is conveyed from the grout pump to the grout hole and through a return line from the hole to the grout tank.

2.5 Concrete Grouting Pad

A concrete grouting pad/slab is provided with or without embedded pipes on the rock foundation under the impervious core of fill dams to enable grouting of shattered upper layers of the rock.

2.6 Consolidation or Blanket Grouting

Consolidation grouting is done to bind and densify the natural foundation strata to make it capable of supporting the load by sealing cracks and gaps so as to behave as monolithic mass and to improve the overall elastic behaviour and bearing capacity of foundation.

2.7 Contact Grouting or Pack Grouting

The process of grouting behind the concrete lining or steel liner to fill the shrinkage gap and voids, if

any, between the concrete lining and the rock surface and/or between the steel liner and the concrete behind it.

2.8 Curtain Grouting

Curtain grouting refers to grouting through one or more lines of deep holes in order to create a barrier against seepage and it is necessary to reduce the uplift pressure.

2.9 Collar of Hole

The opening of hole at surface or opening of stand pipe, protruding out of ground level is called collar of hole.

2.10 Contraction Joint Grouting

Contraction joint grouting is done to seal the contraction joint opening between blocks to make whole concrete to behave as monolith.

2.11 Descending Stage Grouting

It involves drilling a shallow hole and grouting under low pressure. The hole is redrilled to a greater depth and regrouting is done at higher pressure. The process is repeated as often as desired.

2.12 Full Depth Grouting

Grouting in which the entire depth of a hole is grouted in one operation by connecting the grout supply line to the manifold at the top of the hole.

2.13 Grouting

Process of injecting mixtures of cement slurry or other suitable material into confined and inaccessible spaces (cracks and crevices) so that the whole formation may act as a monolithic mass to withstand the high pressure and loads to which it may be subjected.

2.14 Grouting Pattern

An arrangement of holes for grouting.

2.15 Grout Pressure

The pressure under which the grout is injected is called the grout pressure.

2.16 Grout Nipple

A short length of pipe, installed at the top of a grout hole through which drilling is done and/or to which the grout header is attached for the purpose of injection by grout.

2.17 Grouting Rate

The rate at which the grout is accepted by the hole at the specified pressure.

2.18 Grout Refusal

When rate of grout intake of a hole or stage reduces beyond a specified limit, averaged over a given time, at a particular pressure, the hole is said to have attained a state of grout refusal and grouting of a hole is said to be completed.

2.19 Guniting

The process of pneumatically applying cement sand mortar by suitable mechanism and competent operations.

2.20 Jetting

Systematic washing of groups of holes in order to remove the erodible material in the intervening rock mass.

2.21 Manifold or Header

The piping arrangement at the mouth of the hole for connecting the supply/return lines to the hole being grouted.

2.22 Packer

A device used in a hole to segregate a part of a hole for grouting or installed at suitable elevation for maintaining pressure in the hole.

2.23 Packer Grouting

Grouting of a hole which has been drilled to its final depth, in any desired sequence of sections which are isolated by use of packers from the ungrouted sections.

2.24 Pressure Testing

Pumping water into a hole through a direct connection or a packer to measure the rate of acceptance of water under pressure (sometimes also referred to as water testing).

2.25 Pattern

Arrangement of holes in plan and/or vertical section.

2.26 Percolation Test

Feeding water by gravity flow or by pumping of water into a hole through a direct connection or a packer to measure acceptance under test conditions.

2.27 Primary Holes — See 2.30

2.28 Slush Grouting

Application of cement slurry to surface rock as a means of filling cracks and surface irregularities or open joints to prevent leakage and slacking.

2.29 Single-Line System

The piping arrangement by which grout is conveyed from a grout pump to the grout hole through a single line of pipe without a return line.

2.30 Split Spacing Grouting Method

A sequence of drilling and grouting holes in which widely spaced holes are drilled and grouted initially and the spacing is subdivided by intermediate holes. The initial set of holes are termed as primary holes and intermediate holes are termed secondary, tertiary, etc, according to the sequence of subdivision.

2.31 Single Stage Grouting

Grouting the entire depth of the hole, drilled to the final designed depth, in one operation.

2.32 Stage

A complete operational cycle of drilling, cleaning, washing, pressure testing (as may be required) and pressure grouting over a predetermined length/section of the drill hole.

2.33 Stage Grouting

A grouting operation in which the hole is drilled and grouted in stages, redrilling through set grout if unavoidable, instead of being drilled to the entire depth and then grouted either in one operation as in single stage grouting, or in different operations using packers (*see 2.1 and 2.11*).

2.34 Umbrella Grouting

Grouting from the face of the excavation in a pattern resembling a half-opened umbrella to consolidate the rock prior to excavation.

2.35 Washing

Washing of the walls of the grout hole by water under pressure after completion of drilling but before grout injection.

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This Indian Standard has been developed from Doc : No. RVD 02 (0164).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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