Notes by-

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CANAL DROPS

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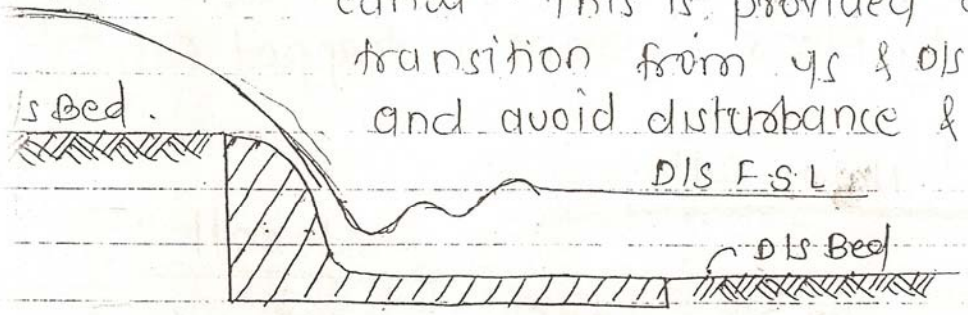
CANAL FALLS OR CANAL DROPS:

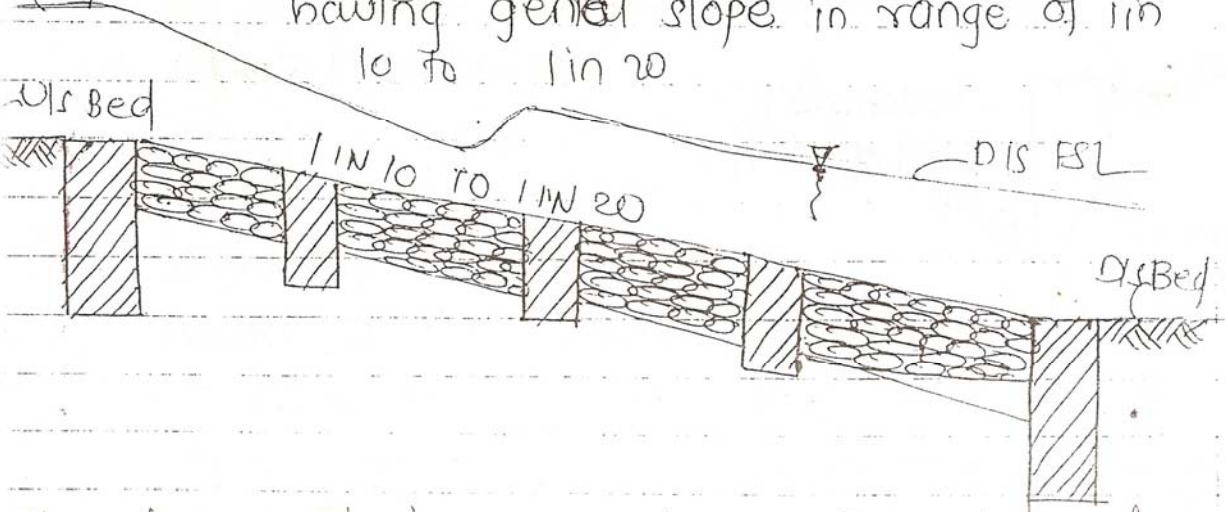
A fall is a structure constructed across a channel permit lowering down its water level and dissipate the surplus energy posed by the falling water

Different type of falls.

Ogee fall: - This is constructed on Ganga canal. This is provided a smooth transition from u/s & d/s water level and avoid disturbance & impact.

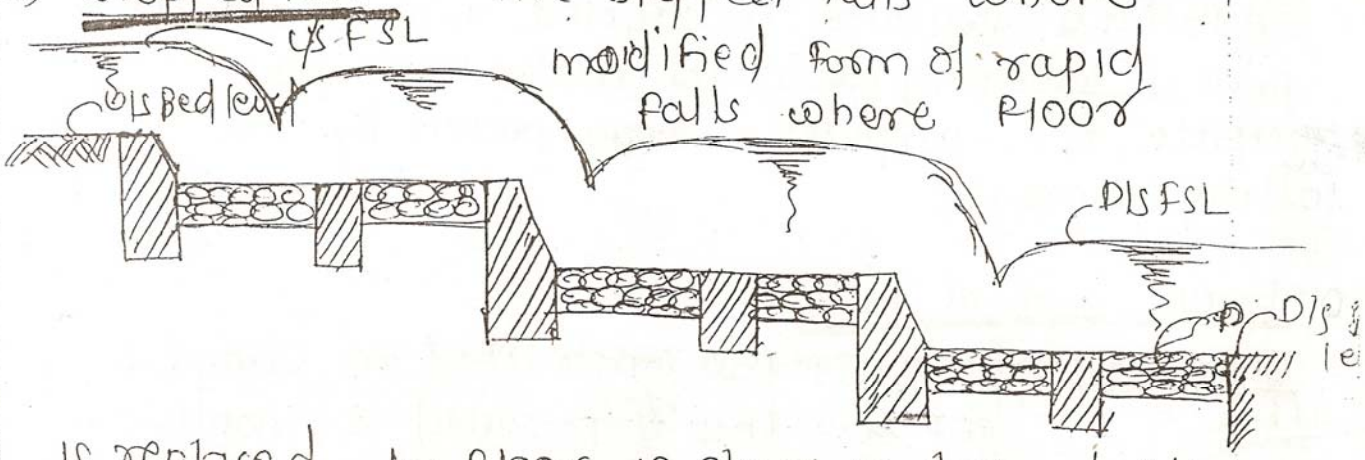


Rapid fall or Rapid - This type of fall is constructed on western yamuna Canal. Boulder pacing are provided with glacis having gental slope in range of 1in 10 to 1in 20



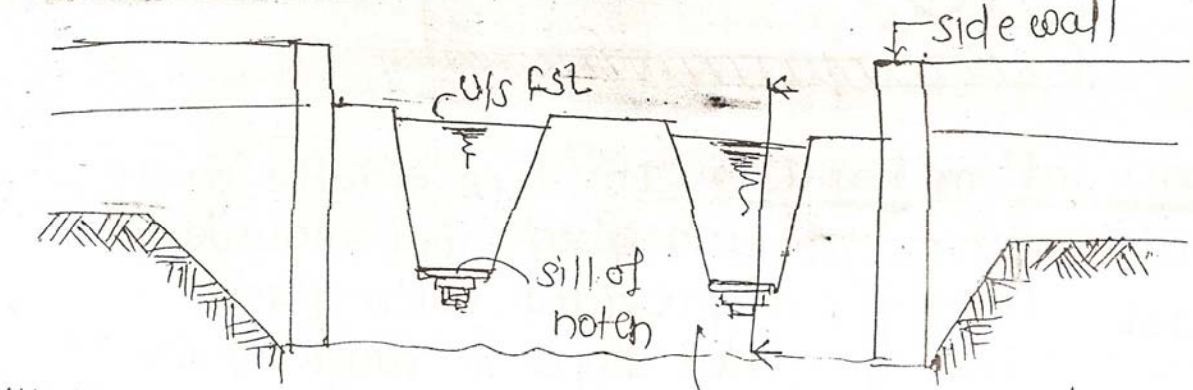
The long glacis assured the formation of hydraulic jump & hence these falls works quite satisfactorily.

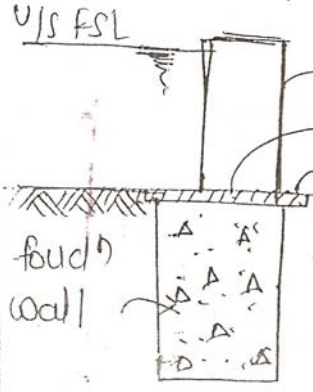
③ Stepped fall: - The stepped falls where modified form of rapid falls where floor



is replaced by floor in steps in steopped fall

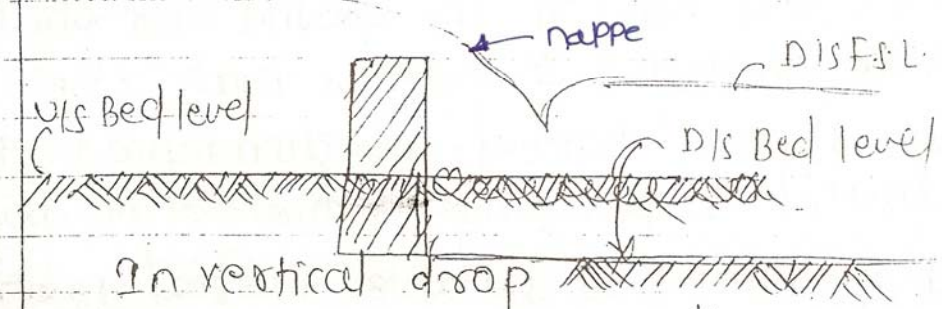
④ Trapizoadal Notch falls:





This consist of no of trapizoadal notches in high breast wall across the channel with smooth entrance and flat circular lip projecting downstream from each notch to disperse water. The notch where designed to maintain the normal depth of flow in the upstream channel at any two discharge value

5 VERTICAL DROP TYPE FALL



In vertical drop type fall the clear nappe leaving the creast is made to impinge into cistern below. The cistern provides water cushion and helps in dissipate the surplus energy of falling jet.

6 GLACIS TYPE FALL: This type of fall utilises hydraulic jump for dessipation of energy earlier a flumed fall with straight glacis evolved in punjab

7 METRE OR NON-METRE FALL: Metre fall is one which can be used to measure discharge of channel. Non metre fall is one which can not measure discharge of channel It must have broad created weir

8 FLUMED and FULL WIDTH FALL

A fall may be either constructed of the full channel width or it may be contracted width are known as flumed fall for a flumed fall smooth upstream transition should be provided to avoid turbulence and to maintain accurate depth discharge relationship.

NECESSITY AND LOCATION OF FALLS ▷

When natural slopes of the ground over which channel is to be constructed is greater than the designed bed slope of channel. The difference in the slope is adjusted by providing vertical falls or drop in the bed of channel at suitable interval. Location

(1) A fall may be provided at location where F.S.L. of channel outstrips the ground level but before the bed of channel comes into filling.

(2) A fall should be so located that as far as possible there is no loss of commanded area of channel.

(3) The fall should be such that below fall the F.S.L. of channel bed remain below the ground level for ½ km to ¾ km but not much more.

(4) Location of a fall may also be affected by the possibility of combining it with a regulator or bridge or some other structure

(5) For location of fall relatively economy of providing a large no of small falls or small number of large fall should considered subject to the condition that commanded area is not reduced.

SARDA TYPE FALL →

It is a vertical drop type fall having a raised crest or crest wall and vertical impact of falling jet. This type of fall was first introduced to replace the notch fall on the sarda canal system in U.P. owing to its economy and simplicity. ~~In the earlier design of th~~

Componet parts

i) Crest wall
ii) cistern
iii) Impervious floor
iv) Downstream protection
v) upstream approach