

Surveying -II

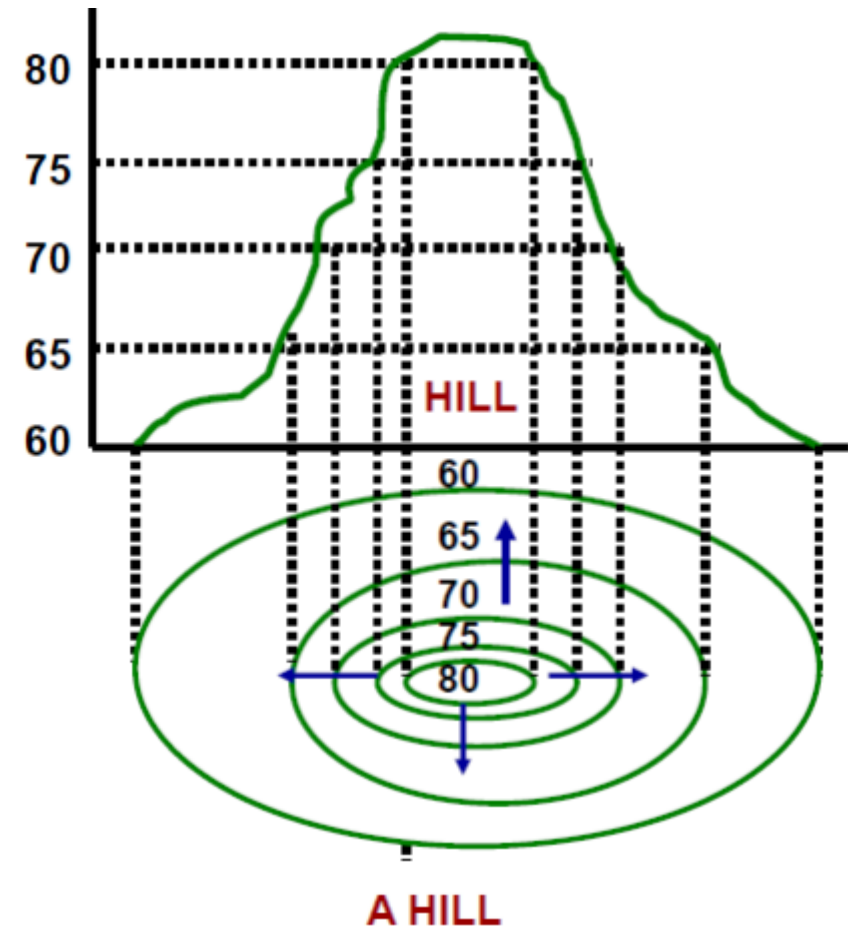
Unit - I

Contour lines

- In survey, contour lines can be define as a line which joine the point of same elevation .
- the point lies on a contour line have same elevation or height.
- An Imaginary line on the ground surface joining the points of equal elevation is known as contour
- Map showing Contour Lines is known as Contour Map

Contouring

- The process of tracing contour lines on the surface of the earth is called Contouring.



Purposes of Contouring

- to select the most economical and suitable site.
- To locate the alignment of a canal.
- To mark the alignment of roads and railways so that the earthwork both in cutting and filling should be minimum.
- For getting information about the ground.
- To locate the physical features of the ground such as a pond depression, hill etc.

Contour Interval & Horizontal Equivalent

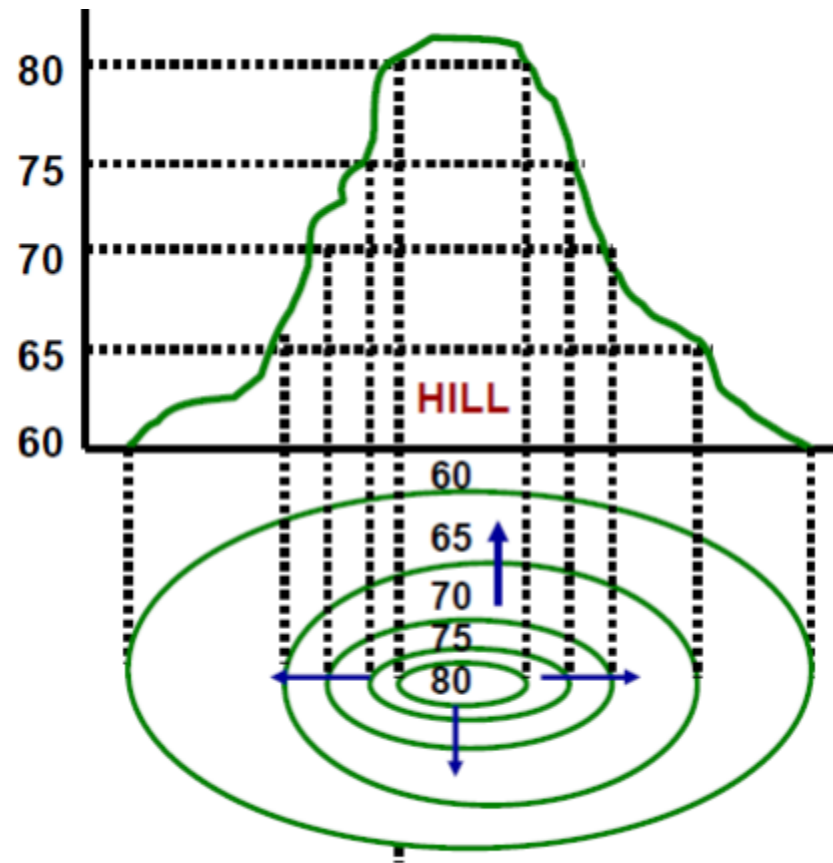
- Contour Interval: The constant vertical distance between two consecutive contours is called the contour interval.
- Horizontal Equivalent: The horizontal distance between any two adjacent contours is called as horizontal equivalent.
- The contour interval is constant between the consecutive contours while the horizontal equivalent is variable and depends upon the slope of the ground.

Characteristics of Contours

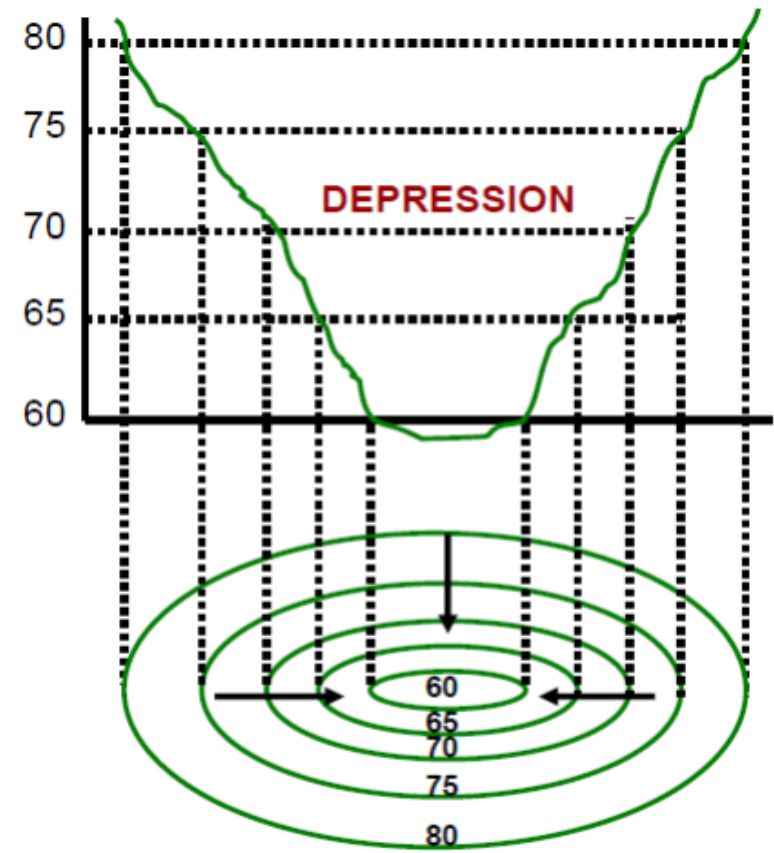
- All points in a contour line have same elevation.
- Flat ground is indicated by the widely separated contours and steep-slope by close together contour .
- A uniform slope is indicated by the contour lines which are uniformly spaced
- A series of closed contour lines on the map represent a hill , if the values decreases towards inside
- A series of closed contour lines on the map indicate a depression if the higher values are outside

Characteristics of Contours

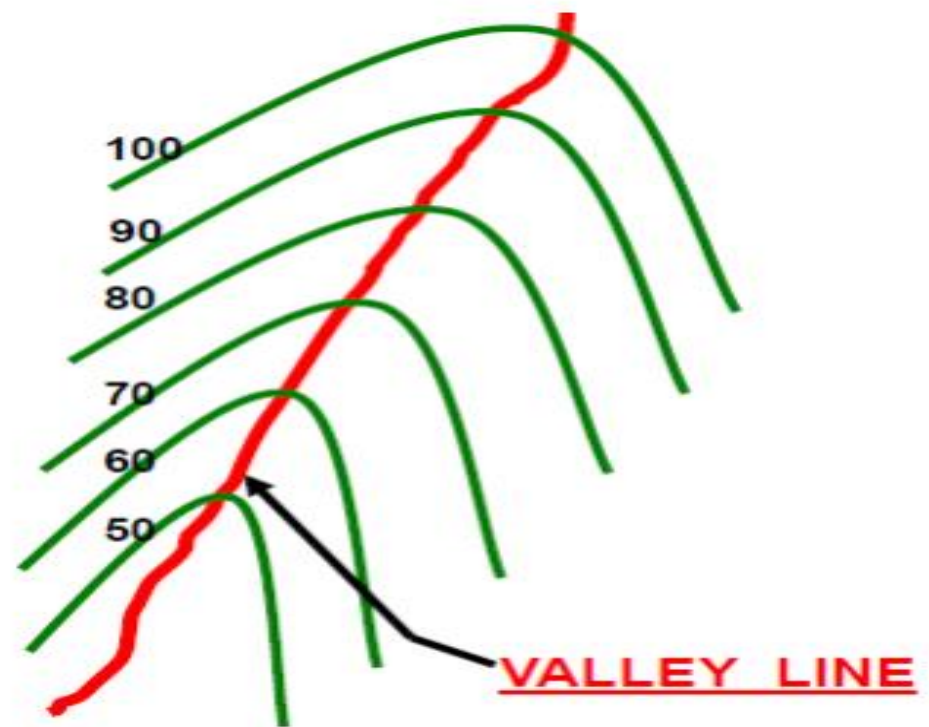
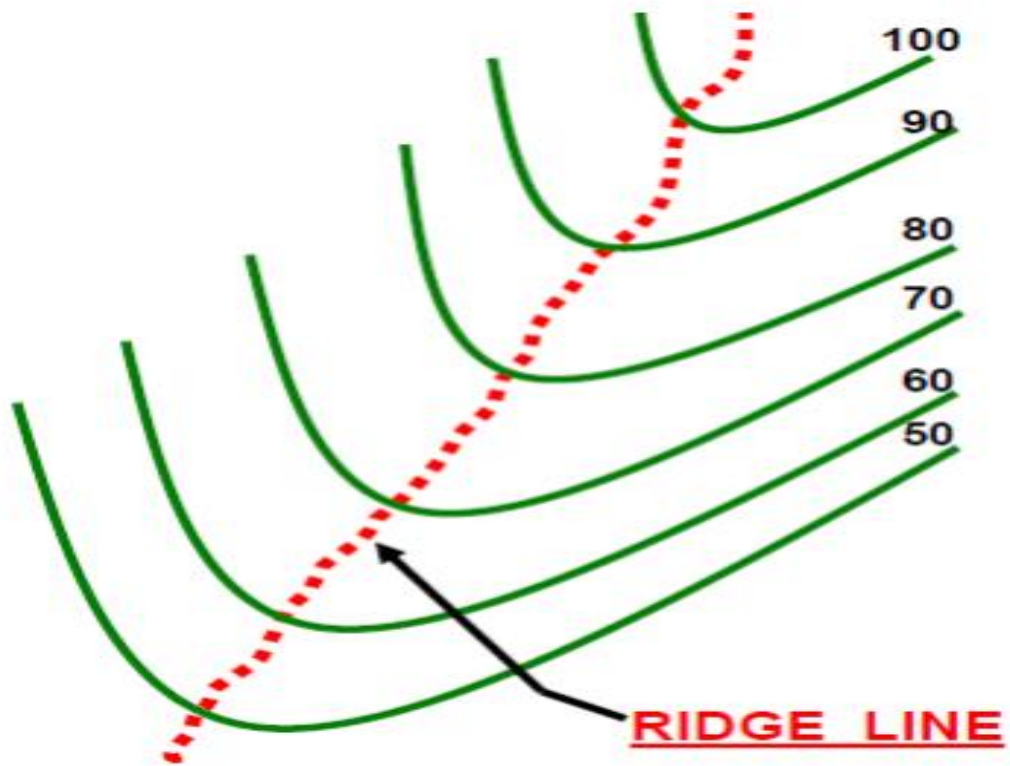
- Contour line cross ridge or valley line at right angles. If the higher values are inside the bend or loop in the contour, it indicates a Ridge. If the higher values are outside the bend, it represents a Valley.
- Contour lines cannot meet or cross one another except in the case of an overhanging cliff
- Contour lines never run into one another except in the case of a vertical cliff. In this case the horizontal equivalent becomes zero.

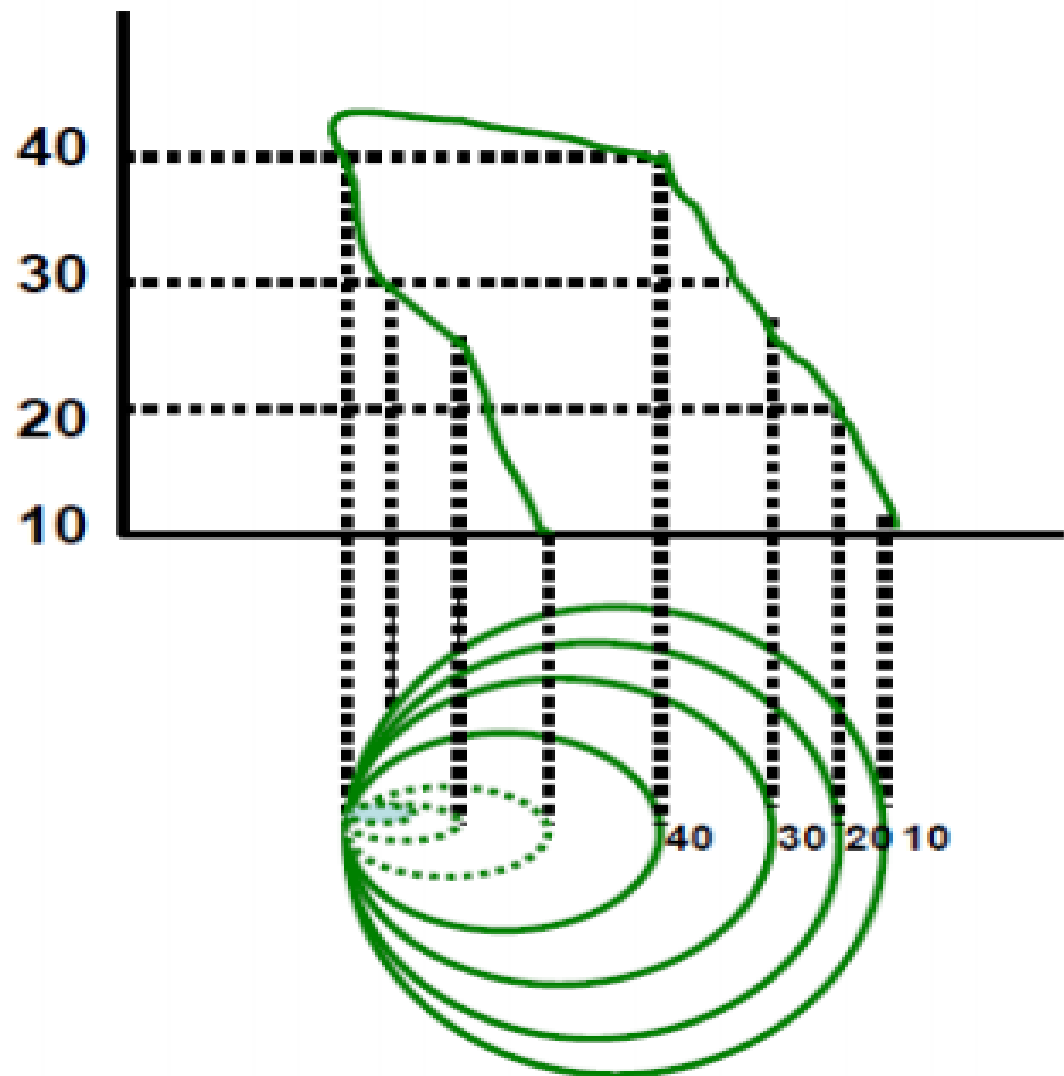


A HILL

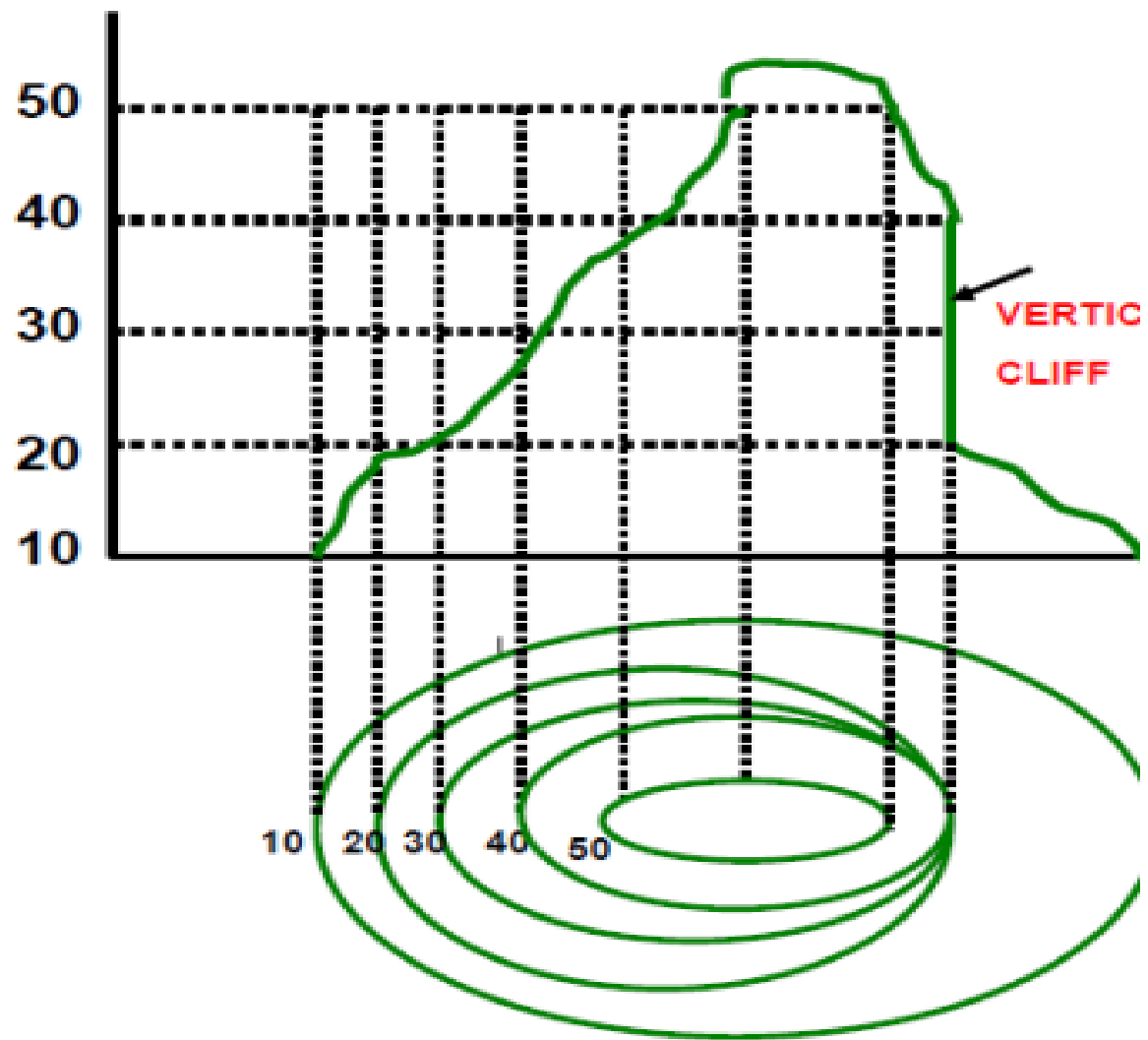


A DEPRESSION





OVERHANGING CLIFF



OVERHANGING CLIFF

METHODS OF CONTOURING

There are mainly two methods of locating contours:-

- Direct Method
- Indirect Method.

Direct Method

In this method, the contours to be located are directly traced out in the field by locating a number of points on each contour. These points are then surveyed and plotted on plan and the contours drawn through them.

Indirect Contouring

In this method the points located and surveyed are not necessarily on the contour lines but the spot levels are taken along the series of lines laid out over the area .The spot levels of the several representative all over the area to be contoured are also observed. Their positions are then plotted on the plan and the contours drawn by interpolation.

Comparison of Direct and Indirect Contouring

Direct Method	Indirect Method
Most accurate but slow and tedious	Not so accurate but rapid and less tedious
Expensive	Cheaper
Not suitable for hilly area	Suitable for hilly area
During the work calculations can be done	Calculations are not required in the field
Calculations can not be checked after Contouring	Calculation can be checked as and when required

THANK YOU