



FACULTY OF ENGINEERING AND
TECHNOLOGY (DEPARTMENT OF
CIVIL ENGINEERING)

Lecture -06

CONTOURING (UNIT-II)

INTRODUCTION

- A contour or a contour line may be defined as the line of intersection of a level surface with the surface of ground. This means every point on a contour line has the same altitude as that of the assumed intersecting surface.
- Supposing a depression is partly filled with water and R.L of the water surface is say 60 m, then the shore line of this water represents 60 m contour. And if the level of water is raised successively by 1 m, the successive shorelines represent 61, 62, 63 m contours and so on.
- The process of tracing contour lines on the surface of the earth is called contouring and the maps upon which these lines are drawn are called contour maps. A contour map therefore, gives an idea of the altitudes of the surface features as well as their relative positions in plan. Thus a contour map serves the purpose of both, a plan and a section.
- Contour An imaginary line on the ground surface joining the points of equal elevation is known as contour.
- It facilitates depiction of the relief of terrain in a two dimensional plan or map. In other words, contour is a line in which the ground surface is intersected by a level surface obtained by joining points of equal elevation. This line on the map represents a contour and is called contour line.
- Contouring is the science of representing the vertical dimension of the terrain on a two dimensional map.

CONTOURING(INTRODUCTION)

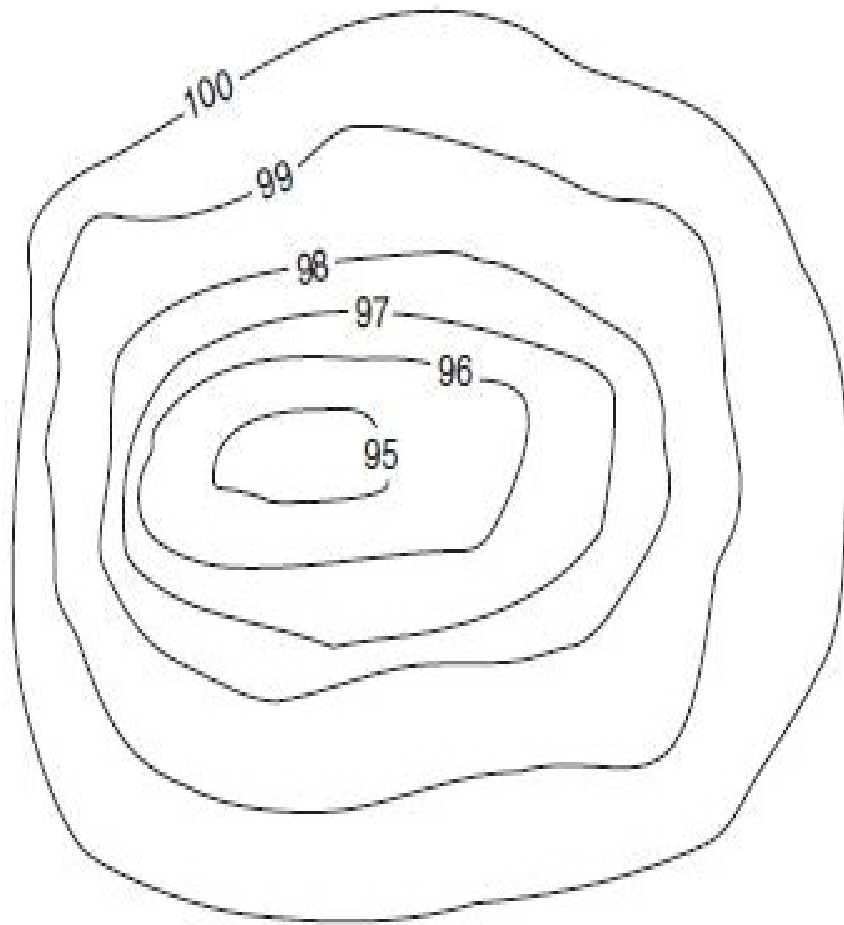


Fig. 17.1. Contours



TERMS USED IN CONTOURING

CONTOUR MAP

- A map showing contour lines is known as Contour map.
- A contour map gives an idea of the altitudes of the surface features as well as their relative positions in plan serves the purpose of both, a plan and a section and a section.

CONTOURING

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

CONTOUR LINE

- A Contour line is an imaginary outline of the terrain obtained by joining its points of equal elevation.

CONTOUR INTERVAL (CI)

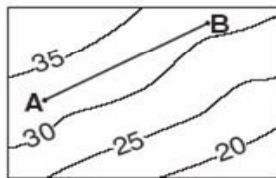
- It is the vertical distance between any two consecutive contours. Suppose a map includes contour lines of 100m, 98m, 96 m and so on. The contour interval here is 2 m. \
- This interval depends upon
 - I. the nature of the ground (i.e. whether flat or sleep).
 - II. the scale of the map
 - III. the purpose of the survey.



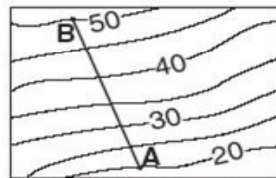
TERMS USED IN CONTOURING

- Contour intervals for flat country are generally small, e.g. 0.25 m, 0.5 m, 0.75m. etc. Contour interval for a steep slope in a hilly area is generally greater. e.g. 5m, 10 m, 15 m etc.
- It should be remembered that the contour interval for a particular map is Constant.

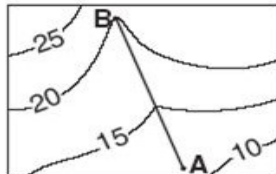
Contour Interval



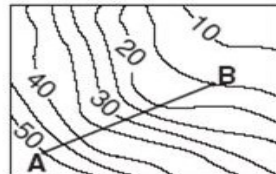
(1)



(3)



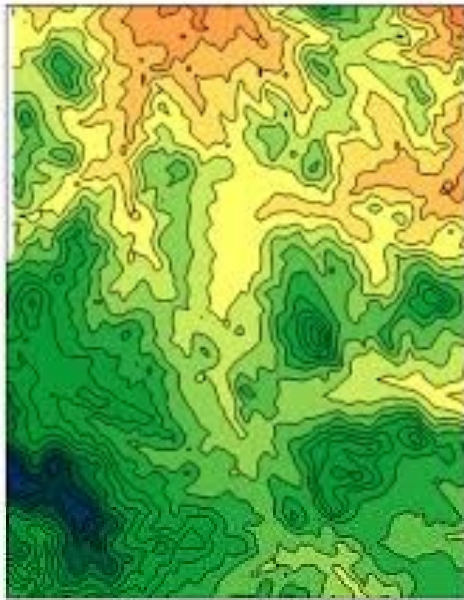
(2)



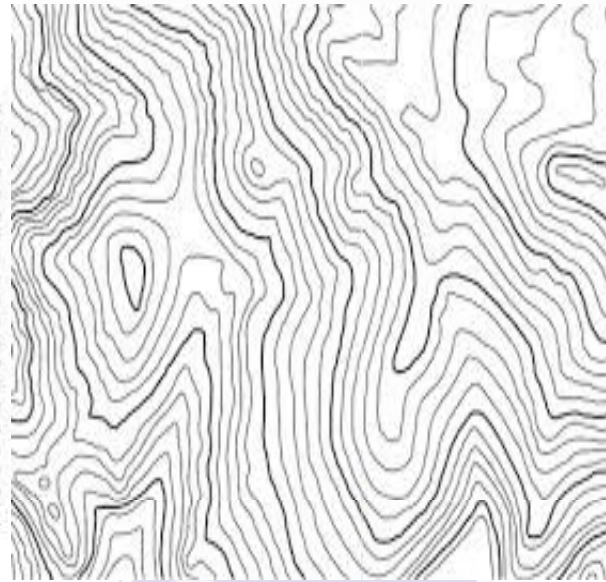
(4)

- What does "contour interval" mean?
 - The value between two consecutive lines
- What is the contour interval for:
 - Map (1)
 - 5 (units)
 - Map (2)
 - 5 (units)
 - Map (3)
 - 5 (units)
 - Map (4)
 - 5 (units)

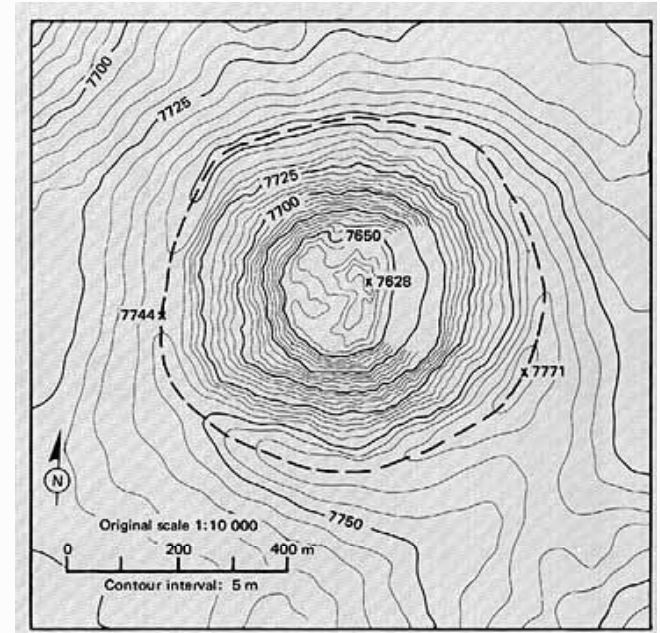
TERMS USED IN CONTOURING



CONTOUR MAP



CONTOUR LINES



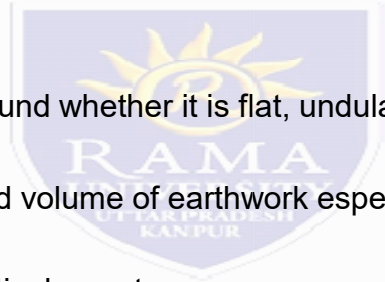
CONTOUR MAP

PURPOSE OF CONTOURING

PURPOSE OF CONTOURING

Contour survey is carried out at the starting of any engineering project such as a road, a railway, a canal, a dam, a building etc.

- I. For preparing contour maps in order to select the most economical or suitable site.
- II. To locate the alignment of a canal so that it should follow a ridge line.
- III. To mark the alignment of roads and railways so that the quantity of earthwork both in cutting and filling should be minimum.
- IV. For getting information about the ground whether it is flat, undulating or mountainous.
- V. To find the capacity of a reservoir and volume of earthwork especially in a mountainous region.
- VI. To trace out the given grade of a particular route.
- VII. To locate the physical features of the ground such as a pond depression, hill, steep or small slopes.



CONTOUR INTERVAL AND HORIZONTAL EQUIVALENT

Contour Interval and 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 termed as the horizontal equivalent. The horizontal equivalent depends upon the slope of the ground.

The contour interval depends upon the following factors:

- I. **The nature of the ground:** In flat and uniformly sloping country, the contour interval is small, but in broken and mountainous region, the contour interval should be large otherwise the contours will come too close to each other.
- II. **The purpose and extent of the survey:** Contours interval is small if the area to be surveyed is small and the maps are required to be used for the design work or for determining the quantities of earth work etc., while wider interval shall have to be kept for large areas and comparatively less important works.
- III. **The scale of the map:** The contour interval should be in the inverse ratio to the scale of i.e. the smaller the scale, the greater the contour interval.
- IV. **Time and expense of field and office work:** The smaller the interval, the greater is the amount of field -work and plotting-work.

CONTOUR INTERVAL AND HORIZONTAL EQUIVALENT

The following are the common values of the contour interval adopted for various purposes:

- a. For large scale maps of flat country, for building sites for detailed design work and for calculation of quantities of earth work: 0.2 to 0.5 m.
- b. For reservoirs and town planning schemes: 0.5 to 2 m.
- c. For location surveys: 2 to 3 m.
- d. For small scale maps of broken country and General topographical work : 3 m, 5 m, 10 m or 25 m.



THANK YOU

