LAND LEVELLING & LAND SHAPING

INTRODUCTION:

Land leveling or grading is the process of preparing or modifying (i.e. reshaping) the land surface to a planned grade to provide a suitable field surface for controlling flow of water, check soil erosion, provide better surface drainage flow, moisture and ensure uniform application and distribution of water.

3.3.3.2. LINKAGES WITH MGNREGA:

In MGNREGA the work of land leveling and land shaping in the field of individual farmers under land development can be done. The main objective of land shaping and land leveling is to get the well graded shaped smooth surface to help the irrigator to achieve uniform application of water throughout the field. It provides better and optimum crop production. Uniform grading ensures uniform and efficient application of irrigation water and also removal of excess water if any without erosion. It conserves water and increases the production per unit of water. About 20% water is saved in field application.

HOW TO DO THE LAND LEVELLING / GRADING:

i) First of all the work is to be done in a particular field. If the field is big, then it has to be divided into borders of width of about 20-30 m to minimize the earth works. It should be done along with adjusted contours and slanting for minimization of earth work.

ii) Fix a temporary bench mark, located on a nearby pucca structure. Do the topographical survey by dividing the field by grids of 5 x 5, 15 x 15, 20 x 20 m grids, depending upon the surface relief of the area & precision required in leveling.

iii) Fix wooden stakes usually of size 1 cm x 4 cm x 50 cm – 1 m at the grid points. Each grid point is at the center of the grid square and represents nearly equal area.

iv) After all points have been staked, determine the ground elevation using a dumpy level at each stake and record on the grid map.

v) After having the elevation of every grid point with respect to the bench mark considered for this purpose draw contour lines at a suitable contour interval as given below:

S. No	Slope percentage required	Contour interval
1	0 – 1	5 to 15 cm
2	1 – 2	15 to 30 cm
3	2 – 5	30 to 60 cm
4	5 – 10	60 to 150 cm

vi) Land leveling design is usually done using plane method. In this method the average elevation of the field is determined and this elevation is assigned to the centroid of the area.

vii) With the help of the contour map the land is divided into fields / border strips that can be graded and

irrigated individually to the best advantage.

PROFILE METHOD OF LAND LEVELLING

i) In the profile of the border strip the average cut is 0.30 m and the width of the border is 30m and length is 55m then the volume of EW will be 495 cubic meter.

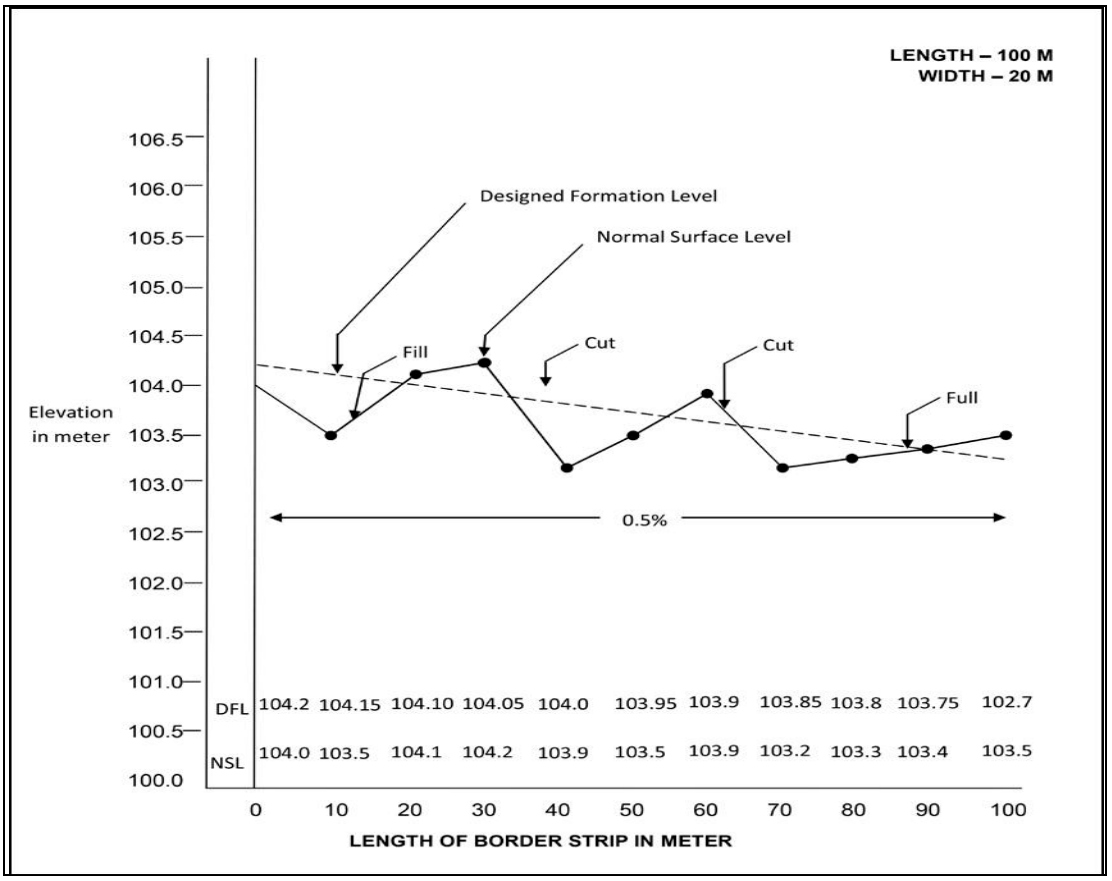

Figure : L-Section of design border strip laid along adjusted contour

ii) Profile method is practical and easier.

iii) There are so many variables in getting the land leveling done by labor which cannot be accurately measured; therefore the experience says that the cost of land leveling cannot be calculated on the basis of Cut & Fill. It is suggested that SoR for land leveling for the area should be worked out by the competent authority after conducting a time motion Study for land leveling with cut-fill / profile method.