Temporary Work

A. A. — IInd y

Syllabus :- Timbring in Trenches, shoring, underpinning scoffolding. shuttering and form work for R.C.C., Centering for arches.

Introduction :— Any structure that is not attached to a permanent foundation. A structure which is permitted within a land use district without any foundation or footing and which is removed when the designated time period, activity, or use for which the temporary structure was erected has ceased.

Timbering of Trenches :-

* When depth of trench is large or when the sub-soil is loose the sides of the trench may cave in. the problem can be solved by adopting a suitable method of timbering.

* Timbering of trench sometime also known as shoring consist of providing timber plank or boards and struts and to give temporary support to the sides of the trench.

The methods are used -

1. Stay bracing
2. Box sheeting
3. Vertical sheeting
4. Runner system
5. Sheet piling.

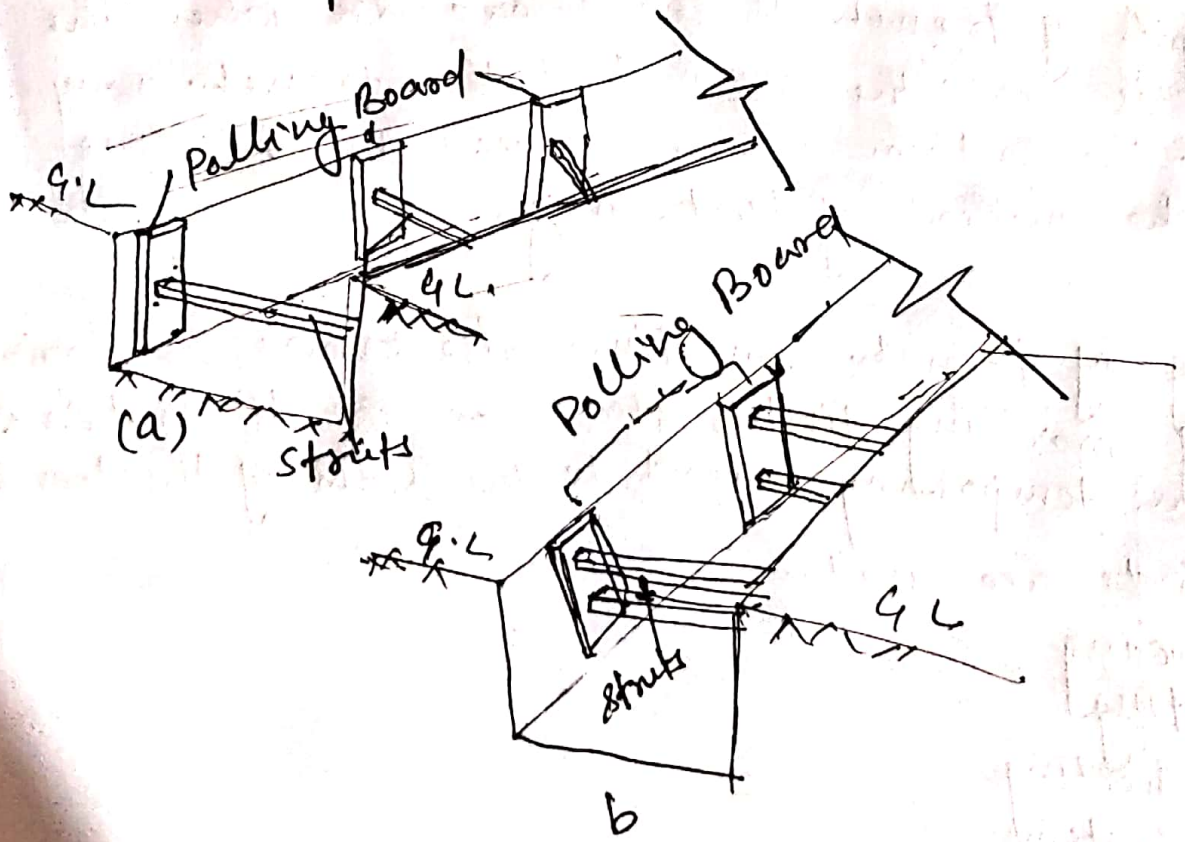
1) Stay Bracing :—

(a) This method is used for supporting the sides or a bench excavated in fairly firm soil, when the depth of excavation does not about two to metres.

(b.) The method consists of placing vertical sheets. called sheeting or polling boards opposite each other against the two walls of the trench and holding them in position by one or two Rows of struts.

(c.) The sheets are placed at an interval of 2 - 4 m. and generally they extend to the full height of the trench.

(d.) The polling board may have ~~a~~ width of about 200mm. and thickness 40 - 50 mm. The struts may have size 100 x 100 mm for trench up to 2m. ~~with~~ width and 200 x 200 mm for trench up to 4 m width.



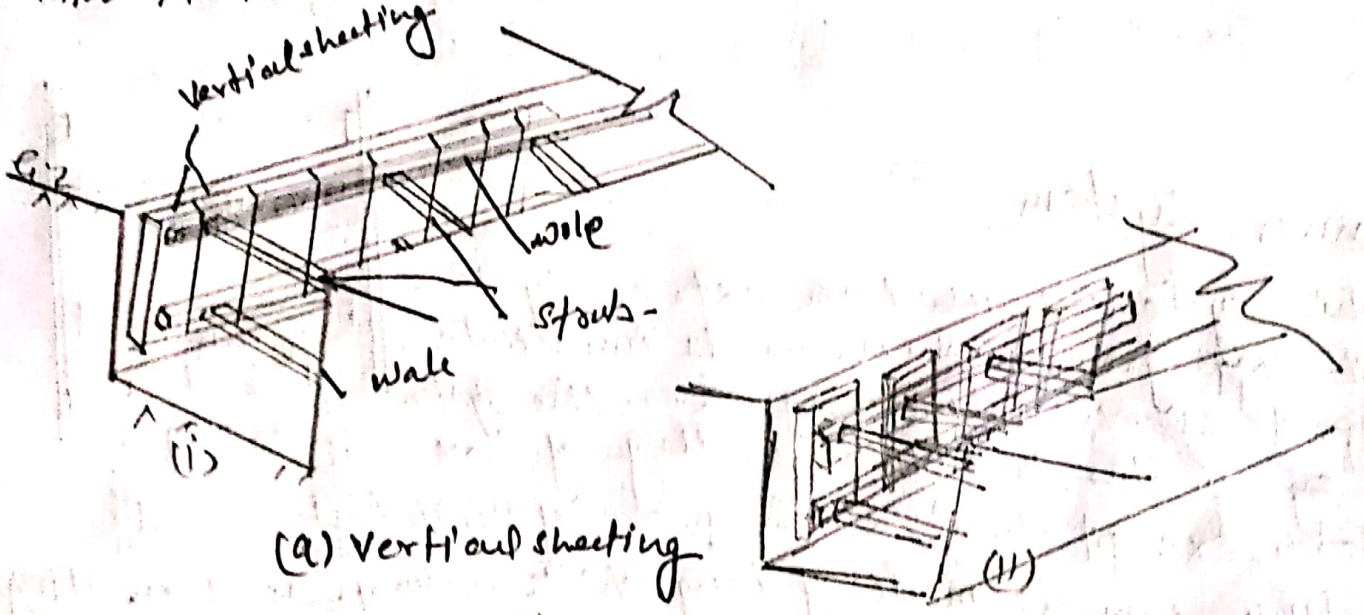
③ Box sheeting

(a) The method is adopted in loose soils, when the depth of excavation does not exceed 4 meters.

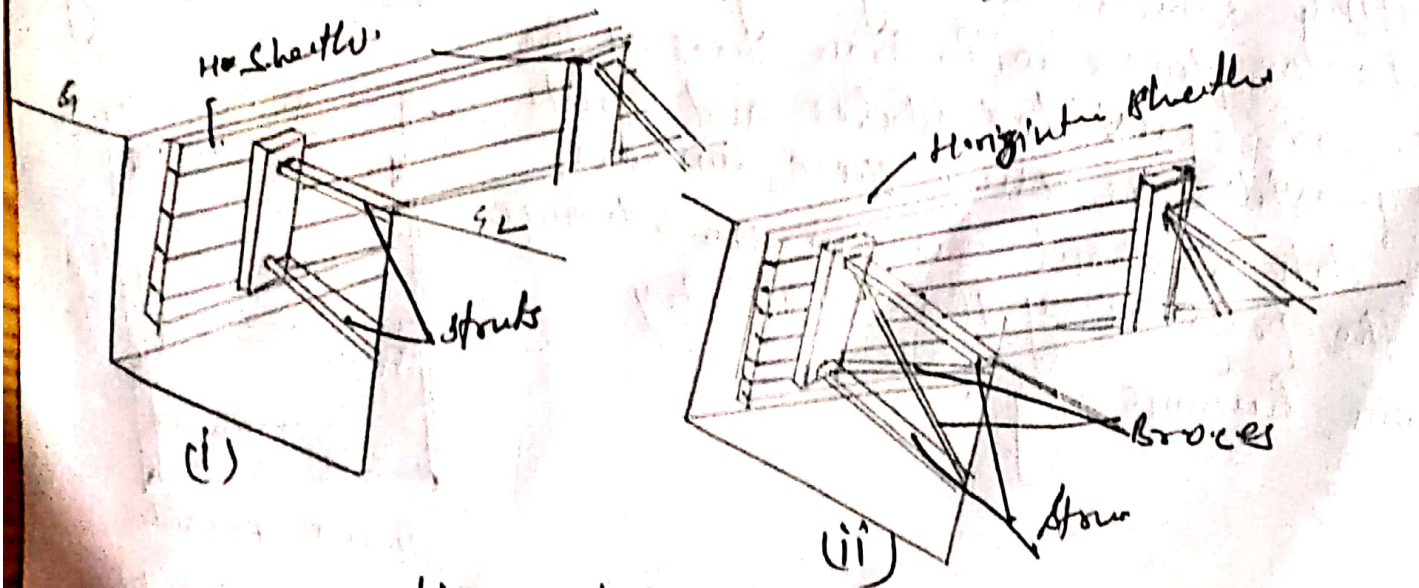
(b) Fig. shows the box like structure, consisting of vertical sheets placed very near to each other and kepping them the position by longitudinal rows (usually two) of walls. Struts are then provide across the walls.

(c) Another system of box sheeting, shown in fig. is adopted for very loose soils.

(d) In this system, the sheeting is provided longitudinally and they are supported by vertical walls and horizontal struts. If the hight is more braces are also provided along with struts.



(a) Vertical sheeting



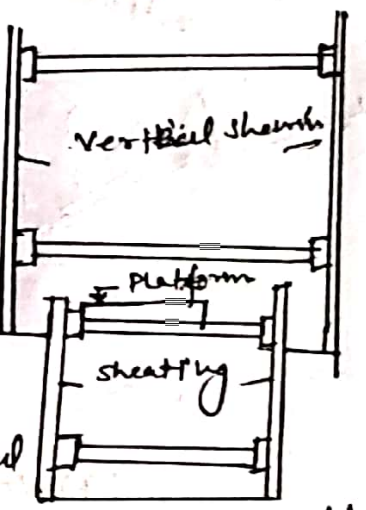
Horizontal Sheeting

Vertical Sheeting :-

(a) This system is adopted for deep trenches (up to 10m depth) in soft ground.

(b.) The method is similar to the box sheeting except that the excavation is carried out in stage and at the end of each stage, an offeset is provided, so that the width of the trench goes on decreasing as the depth encreses

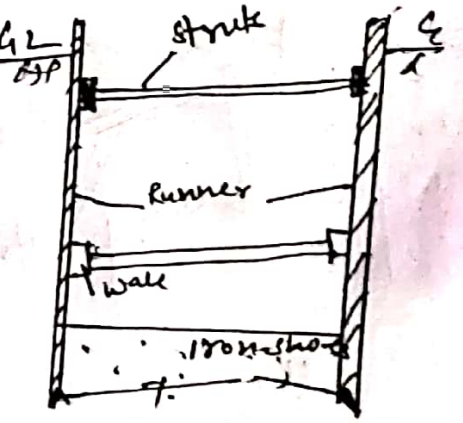
(c.) Each stage is limited to about 3m. in hight and the offset may very from 25 - 50 cm per stage. for each stage, separate vertical sheeting, supported by horizontal wailing and Struts are provided. (fig. ⑤ figure ↓



Vertical sheeting

Runner System

This system is used in extremely loose and soft ground, which needs immediate support as excavation progresses. The system is ~~by~~ similar to vertical sheeting of box system, except that in the place of vertical sheeting, Runner, made of long thick wooden sheets or planks with iron shoes at the ends, are provided. Wales and Struts are provided as usual. These runners are driven about 30 cm in advance of the progress of the work, by human hammering.



Runner sheeting

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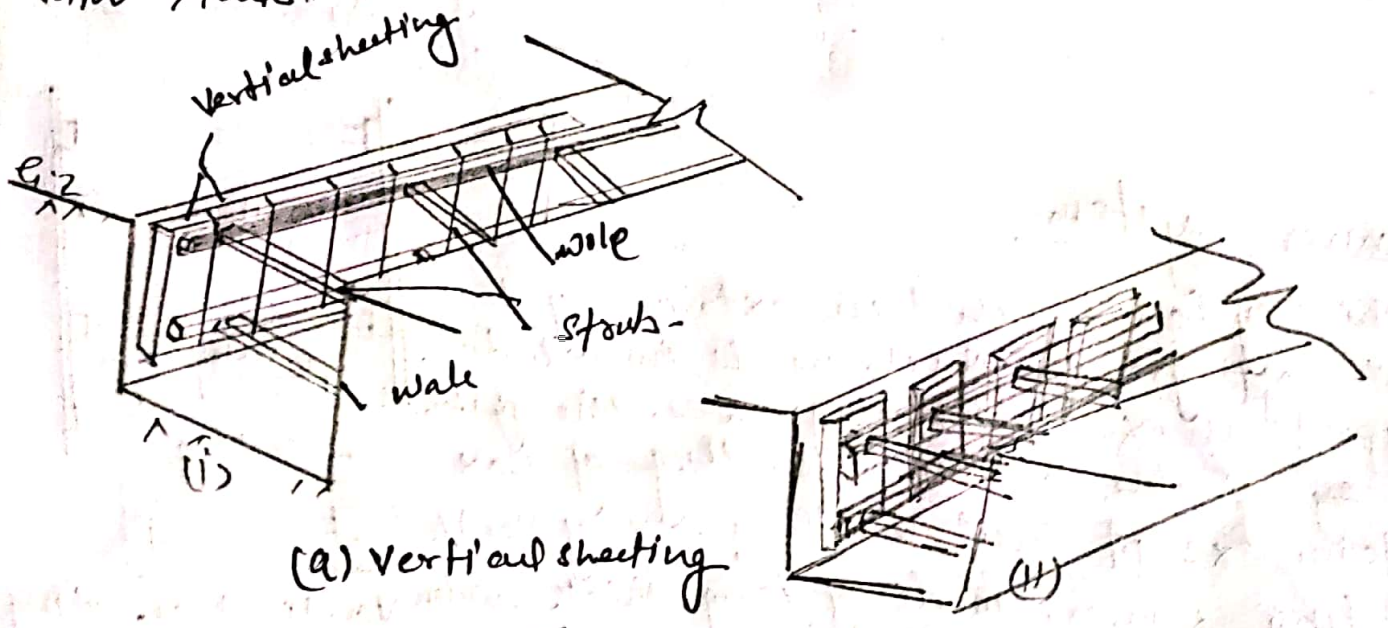
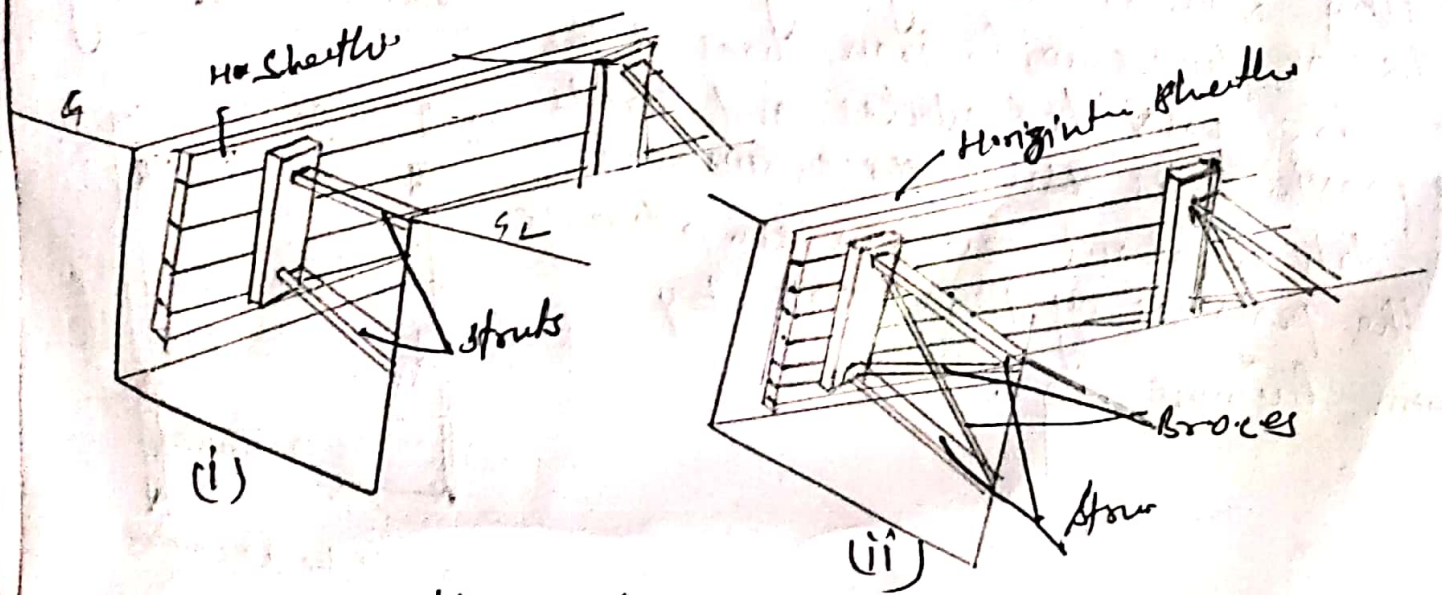


(a) Vertical sheeting



Horizontal Sheeting

Sheet piling :-

(a) The method is adoped is when -

(i) soil to be excavation is soft or loose
(ii) Depth of excavation is large
(iii) Width of trench is also large
(iv) there is sub soil water

(b) Sheet piles are designed to resist lateral earth pressure. There are driven in the ground by mechnical means (pile driving expequipment). They can be used for excavating to a large depth.