

WORK INSTRUCTIONS FOR ENGINEERS

Compiled by : _____ LSS

Checked by : _____ TYC

Approved by : _____ GSS

**OP-3-24. SUPERVISION OF EXCAVATION &
CASTING OF BLINDING CONCRETE**

24.0 SUPERVISION OF EXCAVATION & CASTING OF BLINDING CONCRETE

24.1. INTRODUCTION

This checklist describes the procedures for control of excavation to the final level of shallow foundation and casting of blinding concrete. The commonly used methods and technique for controlling water are also briefly discussed.

24.2. TYPES OF REPORT

The following information will assist the Engineer to understand the actual working sequence and method of construction so that good engineering judgement can be made at site. The information include :

- 1) Construction drawings (full set)
 - to know the details of the work
- 2) Construction programme and sequence of construction
 - assist Engineer to plan his supervision work to concentrate on the critical area that can influence the quality and safety of the work
- 3) Site Information/Reports
 - to be aware of the site subsoil/rock condition
 - site topography and water ways
- 4) Details of Equipment and Machinery to be used.
 - To evaluate the suitability of the proposed construction sequence in terms excavation speed, pouring of blinding concrete in time to prevent soaking of the subsoil
 - Number of excavator used = rate of excavation (m³/day)
 - Concreting equipment/truck = rate of concrete (m³/hour)
 - Number of dump truck = rate of waste disposal (m³/day)
 - Number and type of water pumps = discharge rate (m³/hour)
 - Compaction equipment available
- 5) Details of Materials
 - Concrete = volume of concrete required (total/ each blinding)
 - Concrete mix = water cement ratio
 - Any additives = suitability of additives
 - Trial mix and design mix

24.3. SITE CONTROL CRITERIA & REPORTING

It is very important to carry out proper supervision to produce good quality and safe design. Following are some important items that required special attention :

- 1) The Engineer should look out for any SOFT SPOT or LOCALISED WEAK ZONE at the formation level. The Engineer should inform and discuss with the Project Director or Project Engineer which require immediately instruction. If the SOFT SPOT is encountered (dark clayey with organic materials) then it has to be removed. Usually the depth of excavation does not exceed 1 to 2m (maximum 4m deep). The backfilled material can be granular material (Gravels and Sands) compacted in layer not exceeding 300mm per lift. If extra or left over of unset concrete is available, it can also be used.
- 2) Always leave the last 1m (minimum 0.5m) of soil on top of the final level to the last stage of excavation. Make sure the area to be exposed or trimmed to the final level is not too large so that the concreting capacity (trucks, pump, mixer, etc) on site is able to finish the blinding concrete in one go. Usually the area has to be calculated based on the concreting capacity (1 hour time) taking the blinding to be 150mm thick. The area exposed to the final level usually should not exceed 10mx10m (100m²).

SUPERVISION OF EXCAVATION & CASTING OF BLINDING CONCRETE

- 3) Immediately after the exposed final level is reached, the blinding concrete must be placed as soon as possible (if possible immediately). NEVER LEAVE IT OVERNIGHT.
- 4) If the weather changes (likely to rain), make sure the exposed surface of the final level is blinded with concrete and later cover with plastic sheet if the concrete does not set in time. If it is too late to pour the blinding concrete, at least the exposed final level has to be covered with plastic sheet and proper temporary drainage is available to divert the water. This is the reason why it is not wise to expose too large an area at a time.
- 5) If the exposed final level is soaked, the top soft material has to be removed. The thickness of soaked material to be removed can be 100mm or deeper depending on the extent of soaking and softening. This to prevent settlement in the future.
- 6) The final platform, before pouring of blinding concrete, should always be kept dry. If ponding occurred, the water should be pumped out and soaked materials removed as item (v) and backfilled back as item (i) above.
- 7) If spring water is encountered, the Engineer should estimate the quantity, rate of flow, colour of water, materials washed out, location on the drawing, etc. and report to the Project Director or Project Engineer.
- 8) The spring water must be diverted to proper drainage. The type of drains to be used will depends on the information listed in item (vii) above. If the quantity is large, "French Drains" may be used, or else sand/gravel blanket with UPVC pipe may be sufficient. The Project Engineer is to decide.
- 9) At all time, the safety at site should be observed by the Engineer.